The University of Iowa General Catalog 1996-98

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, The Transfer Guide, 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 employment or 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, Section 504, and the ADA 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

1996
Classes begin August 26
University holiday September 2
Thanksgiving recess November 27-30
University holidays November 28-29
Classes end December 13
Examination week December 16-20
Commencement ceremonies December 20-21
University holidays December 24-25

1997
Classes begin August 25
University holiday September 1
Thanksgiving recess November 26-29
University holidays November 27-28
Classes end December 12
Examination week December 15-19
Commencement ceremonies December 19-20
University holidays December 25-26

Spring Semester

1997
University holiday January 1
Martin Luther King Day January 20
(University holiday)
Classes begin January 21
Foundation day February 25
Summer vacation March 24-28
Classes end May 9
Examination week May 12-16
Commencement ceremonies May 15-17
University holiday May 26

1998
University holiday January 1
Martin Luther King Day January 19
(University holiday)
Classes begin January 20
Foundation day February 25
Summer vacation March 23-27
Classes end May 8
Examination week May 11-15
Commencement ceremonies May 14-16
University holiday May 25

Summer Session

1997
May summer session May 19-June 6
Eight-week summer session June 9-August 1
(first day is registration)
Six-week summer session June 23-August 1
(first day is registration)
University holiday July 4
Commencement ceremonies August 1
Independent study unit for August 4-22
law and graduate students

1998
May summer session May 18-June 5
Eight-week summer session June 8-July 31
(first day is registration)
Six-week summer session June 22-July 31
(first day is registration)
University holiday July 3
Commencement ceremonies July 31
Independent study unit for August 3-21
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 Admission 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), nationwide; direct dial 319-335-3847.

Visit The University of Iowa via the Internet:
http://www.uiowa.edu
## Contents

What Iowa Is All About .............................................. 6  
Learning at Iowa ..................................................... 8  
  Academic Programs ................................................. 9  
  University Honors Program ..................................... 12  
Admissions ............................................................. 13  
Registration ........................................................... 15  
Financial Aid ........................................................... 16  
Student Life at Iowa .................................................. 20  
  Academic Services .................................................. 21  
  General Services .................................................... 23  
  Housing ............................................................... 25  
  Codes, Policies, and Students’ Rights ......................... 26  
Special Resources at Iowa .......................................... 28  
  Research and Interdisciplinary Activities ....................... 29  
  Center for International and Comparative Studies ........... 36  
University Libraries .................................................. 37  
  The University of Iowa Health Sciences Center .......... 38  
  The Iowa Center for the Arts ................................... 41  
  Museum of Natural History ..................................... 44  
  Old Capitol ............................................................ 44  
  Other Services ...................................................... 44  
  College of Liberal Arts .......................................... 46  
  College of Business Administration ......................... 276  
  College of Dentistry ............................................. 294  
  College of Education ............................................ 308  
  College of Engineering ......................................... 350  
  Graduate College .................................................. 390  
  College of Law ...................................................... 402  
  College of Medicine ............................................. 416  
  College of Nursing ............................................... 462  
  College of Pharmacy ............................................. 470  
  Continuing Education ........................................... 476  
  Administrative Officers ........................................ 478  
  Faculty ............................................................... 480  
  Iowa Administrative Code ..................................... 516  

Index ..................................................................... 524
What Iowa Is All About
The University of Iowa is a major national research university with a solid liberal arts foundation. Established 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 continues 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 orbiting and investigating Jupiter and its moons. Its research programs in genetics, hydraulics, engineering, and speech and hearing are world renowned, as are its innovations in agricultural medicine, biocatalysis, biomedical engineering, and pharmacology education.

The University has one of the most extensive research library systems in the country and operates one of the nation's most advanced and comprehensive 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 10 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 Fulbright scholarships for teaching and study abroad, Guggenheim Fellowships, MacArthur Fellowships, senior fellowships from the National Endowment for the Arts and the National Endowment for the Humanities, and Pulitzer Prizes. 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 applicants who are high achievers, and at the same time it serves a broad cross-section of students. Approximately 28,000 students enroll at Iowa during fall and spring semester. Nearly 66 percent come from Iowa, 20 percent from adjoining states, and 8 percent from the remaining states. International students from 104 countries make up 6 percent of the University’s enrollment.

Wealth and Diversity of Programs, Resources

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. Hancher Auditorium offers its patrons a wide selection of programs by established and innovative performance ensembles and concert artists. The Museum of Art displays outstanding permanent collections, works by faculty and students, and traveling exhibits year-round, and the world-renowned Writers’ Workshop, the Playwrights’ Workshop, and the 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, together with the Colleges of Dentistry, Medicine, Nursing, and Pharmacy, provide specialized health care to Iowans as well as to patients from other states and nations. It also provides the clinical base for education of the University’s health science students. Teams of faculty, clinical support specialists, and students study and learn as they care for patients. University Hospitals and Clinics also serve as a resource for 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, men’s and women’s basketball, wrestling, field hockey, softball, swimming, and gymnastics. A member of the Big Ten athletic conference, Iowa offers 12 intercollegiate sports for women and 11 for men. For students not on the intercollegiate teams, the University offers a broad choice of intramural teams and other recreational activities.

The University’s 1,900-acre campus includes more than 100 major buildings, most within walking distance of each other. 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 Iowans’ 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.
ACADEMIC PROGRAMS

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 10 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 undergraduate classes, 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 104 foreign countries.

About 81 percent of the University’s entering freshmen had a B average or above in high school. Approximately 90 percent ranked in the upper half of their high school classes and about 21 percent ranked in the upper one-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 also is 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 accredit ing 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 a summer session with terms of three, six, and eight weeks. An independent study unit follows the end of the summer session.

Academic Recognition

Degrees with Distinction

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

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 higher
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 higher 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.

**President’s List**

Undergraduate students who achieve grade-point averages of 4.00 for two consecutive semesters of 12 or more semester hours of graded work, with no hours of I or O grades during those semesters, are recognized by inclusion on the President’s List.

**Graduation with Honors**

See “University Honors Program” in this section of the Catalog.

**Undergraduate Scholar Assistantships**

For students who rank in the top 1 percent among undergraduates at the University, a limited number of Undergraduate Scholar Assistantships provide 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.

Depending on their interests and fields of study, undergraduate assistants might help in classrooms, do research in libraries, work in the field, perform laboratory experiments, gather and analyze data, program computers, or edit manuscripts.

The biggest reward from this ten-hour-a-week appointment is the working relationship students form with faculty members and the involvement they have in important teaching and research activities. As long as they maintain superior performance, assistants may be invited to continue their work throughout their college careers, allowing them to increase the breadth and depth of 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.

**Course Numbering**

Each course in the regular University curriculum has an identifying number, preceded by the number of the college, department, or program that administers the course. For example, “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.
Marking System

The University uses a letter grading system for individual courses but computes grade-point average according to a numerical scale.

Grade-point averages are displayed at the bottom of students' grade reports and are truncated so as not to exceed 4.00. All of the following marks appear on the permanent record.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade points 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>
</tr>
<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 Failing</td>
<td>0</td>
</tr>
</tbody>
</table>

Not used in computing G.P.A.:

- H Honors
- I Incomplete
- N Nonpass
- O No grade reported
- P Pass
- R Audit
- S Satisfactory
- U Unsatisfactory (Graduate College only)
- W Withdrawn

The College of Law uses a numeric grading system.

Four-Year Graduation Plan

The four-year graduation plan is a partnership between students and the University. Students who sign the four-year graduation plan agree to a number of conditions that guide their studies and their progress toward a degree. The University's colleges and departments also agree to certain conditions. They ensure the availability of courses that students need for graduation; they also guarantee that they will provide certain remedies to a student facing a delay in graduation due to lack of a course, as long as the student has met the conditions of the four-year plan. The Colleges of Business Administration, Education (for elementary education degrees), Engineering, Liberal Arts, and Nursing participate in the four-year graduation plan.

Only freshmen who enter the University directly from high school are eligible to participate in the four-year graduation plan (see "High School Preparation" under "Admissions" in this section of the Catalog). General information on the four-year plan is available from the Office of Admissions. Information also is available from the participating colleges.
UNIVERSITY HONORS PROGRAM

The University of Iowa Honors Program offers special academic, cultural, and social opportunities to outstanding students in the Colleges of Business Administration, Education, Engineering, Liberal Arts, Nursing, and Pharmacy. Membership in the University Honors Program is open to any undergraduate student enrolled at The University of Iowa who maintains a cumulative grade-point average of 3.20 or higher. Honors students must maintain this average to stay in the program.

Entering freshmen who rank in the top 10 percent of their high school graduating class and have achieved an ACT score of 29 or an equivalent SAT score, or who have been selected as National Merit Scholars or Opportunity at Iowa Scholars, are invited to join the program. High school seniors in the top 15 percent of their graduating class who have an ACT composite score of at least 26 or an equivalent SAT score may gain admittance to the program by submitting a letter of recommendation from a high school instructor to the director of the Honors Program.

Academic Opportunities

The Honors Program offers its students a diverse set of academic courses and opportunities to work directly with faculty members as research assistants and teaching interns. Honors courses are not more difficult than other courses; they are different because they offer smaller class size, personalized work with professors, energetic discussion, and thorough exam preparation. Students in honors courses do not compete against each other for grades, so every student can excel. Participation in honors courses is indicated on the student's transcript.

Honors Courses

Students may satisfy General Education Program requirements, or requirements in their major, or take electives, in small classes with outstanding professors through the Honors Program. Honors Accelerated Rhetoric (10:3) fulfills the General Education rhetoric requirement. The course includes lectures by senior faculty members and rhetoric classes of 16 students for writing and speaking assignments.

Each semester the program features a variety of honors seminars—introductory courses on exciting topics in the humanities, social sciences, natural sciences, and cultural diversity. Honors seminars are taught by top University faculty members. Class size is never more than 20 students, and the seminars are approved for General Education.

Students also may take honors sections of courses on a wide range of subject areas. Almost all honors sections are approved for General Education, and many satisfy major requirements.

Through Honors Designation, students also may take any course in the College of Liberal Arts as an honors course. Students pursuing an honors designation must consult with the course's instructor by the end of the third week of the semester, agree on a special project to enrich the course, and fill out the Honors Designation form, which is available from the University Honors Program office. If successfully completed, the course will be designated as "honors" on the student's transcript.

Honors Commendation

Students who take at least four honors courses, with a grade of B or higher in each graded course, before they have completed their second year or their first 59 semester hours (whichever comes last) receive Honors Commendation. Honors Commendation includes a certificate of commendation from the Honors Program, an award letter from the University's president, and announcement of the student's name during Honors Recognition Week.

Research Scholars Program

The Honors Research Scholars Program allows honors students to earn 3 semester hours of credit on a satisfactory/fail basis by working for approximately 10 hours a week as research assistants for faculty members. Honors students who wish to participate are matched with a faculty member whose research interests complement their own. Academic credit is given through the course Honors Research Practicum (143:100).

Teaching Internships

Senior honors students are able to assist faculty as teaching interns in freshman and sophomore-level courses or other approved courses. Each teaching intern is matched with a faculty member from whom the student might benefit in his or her own academic program. Although 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 through Honors Teaching Practicum (143:101).

Honors in the Major

Most majors offer upper-level honors courses, honors seminars, independent research, and/or the opportunity to pursue an original senior honors project under the guidance of a faculty member. Each college and department has a faculty member who serves as its honors adviser. After students declare a major in the College of Liberal Arts or enter the College of Business Administration, Education, Engineering, Nursing, or Pharmacy, they should speak with their collegiate or departmental honors adviser about their academic program.

Graduation with Honors

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 each spring.

Scholarship Advising

The Honors Program helps students prepare to apply for a variety of scholarship awards and prizes. The program offers its own Rhodes Dunlap Scholarships of $2,000 each to selected continuing honors students in all colleges, as well as Rhodes Dunlap Research Grants of $200 each for students working to complete honors projects. These scholarships are made possible by a bequest from Professor Rhodes Dunlap, the program's founder and director for more than 20 years. Announcements concerning the Dunlap awards and other Honors Program scholarships are made through the Honors Program newsletter.

Every year, students from The University of Iowa Honors Program are awarded national and international scholarships. Information, advice, and encouragement for potential Rhodes Scholars, Marshall Scholars, Truman Scholars, Goldwater Scholars, National Science Foundation Scholars, National Endowment for the Humanities Younger Scholars, and recipients of other scholarships is available through the Shambaugh House Honors Center.

Cultural and Social Opportunities

The Honors Program welcomes young scholars to a community in which ideas are shared and experiences are broadened.

Honors House

The home for the Honors Program is a turn-of-the-century Victorian house, now named the Shambaugh House Honors Center. It was a gift to the University from Benjamin Shambaugh, head of the political science department from 1900 until his death in 1940, and his wife, Bertha, a local historian. Shambaugh House—a home away from home for many students—offers the Austin Commons for relaxation and the Truax Library or the seminar room for a quiet place to study. The computer center provides access to the Internet, and the recreation area offers television and ping pong. There is also room for meetings, cultural or social events, or just meeting friends. The program's secretary, the director, assistant director, and the student staff are on hand to help students.

Cultural Program

The Honors Program encourages all of its members to take part in its cultural program, which nurtures appreciation and knowledge of the arts. Funded by the Rhodes Dunlap Bequest, the cultural program purchases tickets so that groups of honors students can attend music, dance, and theater events at Hancher Auditorium and University Theatres at no cost. Each event is preceded by a reception at Shambaugh House and a brief presentation on the performance given either by a University faculty member or by the performers themselves. The Honors Program also sponsors receptions for University guests and lecturers, giving honors students the opportunity to meet informally with these experts and professionals. In coordination with the Center for International and Comparative Studies (CICS),
the Honors Program sponsors a series of luncheons featuring noted speakers.

**Associated Iowa Honors Students**

The Associated Iowa Honors Students (AIHS) is open to all University Honors Program students. AIHS is an excellent way to get involved in the Honors Program and to meet other students, engage in fun activities, and do charitable work in the Iowa City area. AIHS holds regular weekly meetings in Shambaugh House to plan its activities.

**Courses**

143:30 Cultural Diversity Seminar 3 s.h.
Issues concerning the nature of personal and cultural identity in our pluralistic society; aspects of identity that are constant or culturally constructed; readings on race, ethnicity, class, sexuality, gender. GE: cultural diversity.

143:50 Honors Seminar in Humanities 3 s.h.
Small-class experience with a regular faculty member on a central topic of concern. Open only to honors students. Approved for GE: humanities.

143:60 Honors seminar in Social Sciences 3 s.h.
Small-class experience with a regular faculty member on a central topic of concern. Open only to honors students. Approved for GE: social sciences.

143:70 Honors Seminar in Natural Sciences 3 s.h.
Small-class experience with a regular faculty member on a central topic of concern. Open only to honors students. Approved for GE: natural sciences (non-lab).

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.

143:120 Honors Seminar in International Studies arr.

**ADMISSIONS**

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.

**High School Preparation**

Students entering the University must have completed the following set of high school courses 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 1985; and liberal arts transfer students with 24 or more semester hours of transferable credit who graduated from high school in 1991 or after. Certain requirements vary for students enrolling in the College of Engineering (noted in italics)

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

A single foreign language: two years are required, but four are preferred.

Mathematics: a total of three years (two years of algebra and one year of geometry are required); in addition, a course in higher mathematics—trigonometry, analysis, or calculus—is recommended for students who plan to pursue a science major.

Students enrolling in engineering must meet the above mathematics requirements, including completion of a course in higher mathematics.

Social studies: three years are required, but four are preferred. (American and world history, anthropology, economics, geography, government, psychology, and sociology).

Students enrolling in engineering must have completed two years of social studies.

Science: a total of three years; one full-year course each from two of these areas: biology, chemistry, and physics; and a third year from any area, including those not listed, such as general science, physical science, geology, and astronomy).

For students enrolling in engineering the three years of science must include one year of chemistry and one year of physics. Engineering also recommends, but does not require, one year of computer programming.

Performing arts, visual arts, or humanities: one year is recommended but not required.

Students whose high school curriculum did not offer courses necessary to complete the unit requirements or who experienced difficulty in scheduling the required courses may appeal to the director of admissions for an exception.

**Applying for Admission**

Prospective students interested in enrolling in any of The University of Iowa’s colleges should contact the Office of Admissions to request application forms and application instructions for both admission and University housing. All applicants must submit formal applications, official transcripts, test scores, and other required supporting material to the Office of Admissions. For specific admission standards of the respective colleges, refer to the appropriate collegiate sections of the Catalog.

**ACT and SAT 1 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). The Pharmacy College Admission Test (PCAT) is required for students applying to the College of Pharmacy. 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 must be submitted with the application.

**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 November 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 April 15 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, February 1 for summer or fall admission; LL.M. 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 1 (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.

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 their intended enrollment date. Applicants must satisfy all application procedures and submit their 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 not 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. Many individual departments and programs 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, April 15 for fall semester, October 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 November 1.

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

College of Law J.D. program, February 1 for summer or fall admission; LL.M. program, March 1 for fall 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.

Dental Schools Application Service by November 1.

DEADLINES
Applicants must provide all supporting documents and materials required for admission, tuition, and fee purposes. The evaluation is based on the applicant’s academic record and 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 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 any English as a Second Language (ESL) courses; or be allowed 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
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 enroll in the Iowa Intensive English Program 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 result of the evaluation, these students may be allowed to take a full academic course load, excluding any English as a Second Language (ESL) courses; or be required to enroll in credit-bearing ESL courses; or be required to continue in the Iowa Intensive English Program until their language proficiency reaches an appropriate level.

Applicants without TOEFL scores or with scores below 450 are not considered for admission to the University. These students may enroll in the Iowa Intensive English Program (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.

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 materials, write to the Iowa Intensive English Program at The University of Iowa.

GRADUATE APPLICANTS
A minimum TOEFL score of 550 is required for admission to the Graduate College. There is no conditional admission for graduate students whose TOEFL scores are below 550. 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. Students are required to complete any English as a second language course work (typically within the first year of study) that is specified as a result of the English Proficiency evaluation.

English Proficiency Evaluations
On-campus proficiency evaluations for newly admitted students are conducted by the Department of Linguistics. If such evaluation warrants, 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 coursework 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.

Students admitted to health sciences programs that have a clinical component must provide proof of health insurance coverage at the time of registration. Students are notified of the minimum insurance standards after they are admitted.

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 general 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 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.

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 start 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 registration.

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 1996-97 is stated below. Extension courses are $163 per semester hour for graduate students and $103 per semester hour for undergraduates; M.B.A. extension courses are $213 per semester hour. Correspondence courses are $77 per semester hour. All fees are subject to change by action of the State Board of Regents.

Undergraduate
Resident $1,235
Nonresident 4,534

Graduate
Resident 1,467
Nonresident 4,726

Dentistry
Resident 2,816
Nonresident 8,748

Law
Resident 2,583
Nonresident 7,010

M.B.A.
Resident 1,913
Nonresident 5,209

Medicine
Resident 4,361
Nonresident 11,680

Pharmacy
Resident 1,791
Nonresident 5,585
Doctoral resident 2,206
Doctoral nonresident 6,822

General fees provide for the student’s use of the Iowa Memorial Union, libraries, laboratories, and gymnasium; free admission to some sports events and to student-faculty concerts; reduced rates for admission to University athletic events and theater productions and to performances by visiting stage and concert artists; subscriptions...
to the student newspaper, The Daily Iowan, delivered to housing units; certain student hospital services; and other activities and services as amounted.

Extension and correspondence fees do not provide for the benefits listed above.

**Payment of Student Accounts**

Effective fall 1994, all items students have contracted to pay are billed in full for the term. These include tuition and fees, residence hall room and board charges, and fraternity and sorority housing.

Students have the following three tuition and fee payment options.

Option 1: pay the full amount billed

Option 2: pay the minimum monthly periodic payment, including a $15 deferred payment fee; or

Option 3: participate in the optional payment plan offered by Tuition Management Systems, a private organization authorized by The University of Iowa to contact students and parents.

**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.

When a student withdraws during the first term of enrollment, his or her tuition and fees are adjusted according to a pro-rata refund schedule required by the U.S. Department of Education. The adjustments are provided to all first-time enrollees regardless of their financial status. All students who withdraw after their first term of enrollment and who received federal financial aid for that semester receive a refund according to the federal refund policy.

**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.

**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 information 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.

- The University determines the estimated costs for an academic year; these include tuition, fees, books, room and board, transportation, and personal expenses.
- 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.
- Financial need is determined by subtracting the expected family contribution from the estimated costs for an academic year at the University.

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.

Minimum semester hours: Undergraduates must earn 22 semester hours per academic school year (fall, spring, and summer sessions combined) or 11 semester hours if enrolled for one semester (fall or spring) only. Graduate students must earn 12 semester hours per academic school year or 6 semester hours if enrolled for one semester (fall or spring) only.

Minimum grade-point average: Undergraduates and graduate students must maintain at least the minimum grade-point average requirement of the college in which they are enrolled.

Duration of eligibility: Undergraduate students’ eligibility terminates when the total semester hours earned, including transfer hours, or the total semesters enrolled, including withdrawals, equals the limits outlined below by college. Transfer, CLEP, or correspondence hours accepted toward University of Iowa degrees are considered in determining duration of eligibility.

- Liberal Arts: 134 semester hours earned or 12 semesters enrolled
- Engineering: 138 semester hours earned or 12 semesters enrolled
- Business: 130 semester hours earned or 12 semesters enrolled
- Nursing: five semesters of clinical rotation

Pharmacy: individual student eligibility reviews in coordination with the college’s dean

Graduate – master’s level: 48 semester hours earned, or eight semesters attempted

Graduate – doctoral level: 96 semester hours earned, or 16 semesters attempted

Note: Graduate students whose programs of study require the total number of semester hours earned to exceed 15 must submit projected graduation dates in order to establish an appropriate duration of eligibility. Examples of such degree programs include Ed. S., M.A.T., M. B.A., M. F.A., and M.S.W.

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
Withdrawal of Registration and Impact on Eligibility

Federal financial aid regulations require that institutions review the financial aid eligibility of students who withdraw from the institution to determine whether a reduction in financial aid is necessary. The determination is based on factors outlined in the Federal Register, 59/82, sect. 668.22, Institutional Refunds and Repayments.

When a student withdraws during the first term of enrollment, his or her tuition and fees are adjusted according to a pro-rata refund schedule required by the U.S. Department of Education. The adjustments are provided to all first-time enrollees regardless of their financial status. AU students who withdraw from the University after their first term of enrollment and who receive federal financial aid for that semester receive a refund according to the federal refund policy.

Financial aid is credited to students’ University accounts to pay part or all of the contracted University charges for the semester (tuition, fees, room, and board). It may be necessary for the Office of Student Financial Aid to reduce the aid eligibility of students who withdraw their University registration and to refund a portion of the financial aid.

Financial aid funds in excess of the contracted University charges are paid directly to the student. These funds may be used to pay noninstitutional expenses (e.g., purchase of books, personal expenses, off-campus room and board, transportation). Eligibility for the excess funds also may be reduced based on the withdrawal of registration, and students who withdraw may be required to repay a portion of the excess financial aid.

The amount that must be refunded or repaid upon the student’s withdrawal is based on three factors. The first is the overall amount of education-related costs for the period of enrollment, as calculated by the Office of Student Financial Aid. Charges for residence hall room and board only up to and including the date of withdrawal can be included in the calculation. Any residence hall room and board charges incurred after the withdrawal are the responsibility of the student and appear on the student’s University bill.

The second factor is the amount of financial aid received for the semester. The third is the amount scheduled to be paid by the student to cover all remaining charges for the semester. Any refund or repayment obligation is clearly outlined in writing to the student and appears on the student’s University bill.

The refund or repayment for financial aid received during the current academic year or summer term is allocated in the following order:

- Federal Direct Unsubsidized Stafford/Ford loan
- Federal Direct Stafford/Ford loan
- Federal Direct PLUS loan
- Federal Perkins loan
- Federal SEOG Program

Other student assistance provided under Title IV programs

Required refunds of other federal, state, private, or institutional student financial assistance

Any remaining amount is mailed to the student. However, if the contracted charges are adjusted downward by the Office of the Registrar or by the University’s Housing Office after the withdrawal is finalized, any credit balance is refunded to the funding source in the order outlined above. Late adjustments do not result in a cash refund to the student unless all financial aid programs have been refunded fully in the order stated above.

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.

The Iowa Center for the Arts Scholarships

The Iowa Center for the Arts Scholarships are awarded on the basis of exceptional talent in the fine arts. Each department (art, dance, theatre arts, and music) awards one scholarship to an entering freshman majoring in one of the areas. The scholarship, the highest award that these areas offer to entering freshmen, is a $2,500 freshman-year, nonrenewable stipend. Application deadlines for these awards fall between January and March of applicants’ senior year of high school.

Application information is available from the Office of Admissions or the appropriate department.

Opportunity at Iowa Scholarships

Opportunity at Iowa Scholarships are the University’s highest scholastic awards for traditionally underrepresented entering minority students. They are awarded to incoming freshmen who have demonstrated outstanding academic achievement in high school. Information about Opportunity at Iowa Scholarships is available from the Office of Admissions.

National Merit Scholarships

The University offers National Merit Scholarships to all entering freshmen who have attained finalist status in the National Merit Competition. Students may receive awards for up to four years. The minimum award is $750. Awards range from $750 to $2,000, based on financial need. The FAFSA determines need.

Departmental Scholarships

For information about departmental scholarships, students should inquire at the offices of the academic programs of interest.

University of Iowa Tuition Scholarships

University of Iowa tuition scholarships are institutional funds awarded on the basis of financial need and academic achievement. They are limited to eight semesters. To qualify, entering freshmen must have an ACT composite score of 28 or above or must rank in the upper 10 percent of their high school graduating class; returning undergraduates must have a University of Iowa cumulative grade-point average of at least 3.00. The maximum amount of the scholarship is resident tuition, and the award is applied directly toward tuition. These scholarships are for undergraduates without a bachelor’s degree who are enrolled full-time. The FAFSA determines financial need.

Iowa Community College Transfer Scholarships

Students who graduate from an Iowa community college with an associate of arts degree (without a bachelor’s degree) and demonstrate financial need and academic merit may be eligible for this scholarship. They must have a transfer grade-point average of 3.00 or higher and must enroll for at least 12 semester hours each semester. Scholarships range from $200 to the amount of resident tuition and are applied directly toward tuition.

Renewal is made through the University of Iowa Tuition Scholarship, described above.

UI Transfer Scholarships

The Transfer Scholarship is intended for students pursuing their first undergraduate degree who transfer a minimum of 24 earned semester hours and demonstrate financial need. A transfer grade-point average of 3.00 or higher is required. Recipients must enroll for at least 12 semester hours each semester. Scholarships range from $200 to the amount of resident tuition and are applied directly toward tuition.

Students who transfer fewer than 24 semester hours but who meet the criteria for need are considered for the scholarship if they rank in the top 10 percent of their high school graduating class or have an ACT composite score of 28 or higher (or the SAT equivalent). Renewal is made through the University of Iowa Tuition Scholarship, described above.

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.

Grants
Federal Pell Grants
Undergraduate students without bachelor’s degrees may apply for Federal Pell Grants. These awards range from $200 to $2,340 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 in a degree program in order to be eligible. The FAFSA determines eligibility.

Educational Opportunity Program (EOP) Grants
Institutional funds are awarded to students in the Special Support Services program. The FAFSA determines eligibility.

Iowa Grant
The Iowa Grant is a state-supported program awarded on the basis of financial need to undergraduate Iowa residents. The FAFSA determines eligibility.

Iowa Minority Academic Grants for Economic Success (IMAGES)
The Iowa Minority Academic Grants for Economic Success (IMAGES) is a state-supported program for minority undergraduates with financial need. Preference is given to residents of Iowa. The FAFSA determines eligibility.

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.

William D. Ford Federal Loans
Federal Direct Stafford/Ford Loans are low-interest loans made to students who have financial need after other aid has been awarded. The interest rate is variable, and repayment begins when recipients cease to be at least half-time students. The FAFSA determines eligibility. Promissory notes for all William D. Ford Federal Direct Loans are sent to students with the award notification letter by the Office of Student Financial Aid.

The Federal Direct Unsubsidized Stafford/Ford Loans are for students who are not eligible for the annual maximum Federal Direct Stafford/Ford Loan. Interest on this loan accrues while the student is in school. Recipients must be enrolled at least half-time.

Federal PLUS loans are for parents of dependent students. They provide additional funds for educational expenses. The loans have a variable interest rate that is adjusted each year. Students must file the FAFSA.

Health Professions Student Loans
Health Professions Student Loans are long-term federal loans for students enrolled full-time in the College of Dentistry or Pharmacy. Amounts available depend on federal funding. The interest rate is 5 percent. The FAFSA determines eligibility.

Students in the College of Medicine may borrow through the Health Professions Student Loan if they previously have received the loan. New borrowers are eligible for the Primary Care Loan.

Nursing Student Loans
Long-term federal loans are available for undergraduate students enrolled at least half-time in the College of Nursing. Amounts available depend on federal funding. Repayment begins nine months after recipients cease to be half-time students. Interest is 5 percent. The FAFSA determines eligibility.

Part-Time Jobs
Student part-time employment can provide meaningful work experience as well as assistance in meeting educational expenses. The University of Iowa employs nearly 11,000 students in a variety of positions. These jobs offer students the opportunity to increase skills, gain experience, and earn money.

Student part-time employment is limited to 20 hours per week during the academic year and 40 hours per week during the summer session. The minimum wage paid by the University is $4.65 per hour. Students employed on an hourly basis are paid by check once every two weeks.

Jobs are advertised via JOBNET, a computerized on-campus job listing system. JOBNET can be accessed at the University’s Instructional Technology Centers campuswide.

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.

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.

WS jobs are listed on JOBNET, the computerized on-campus job listing system.

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, in care of the Iowa State Capitol in Des Moines.
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
ACADEMIC SERVICES

Academic Advising

Academic advising is mandatory at The University of Iowa. Students must obtain clearance from their advisers to register for courses each semester.

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 academic advisers in their respective collegiate deans' offices. 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 advising 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.

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 (OIES) is an essential part of The University of Iowa's international activities. The office promotes the acquisition and development of attitudes, skills, and knowledge that enhance the lives of faculty, students, alumni, staff, and community groups, and it strives to ensure that the University's major functions of teaching, research, and service have an international dimension. OIES also is a major source of information about the University's many international activities.

OIES 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, sponsoring agencies, Friends of International Students, and the International Women's Club. 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 International Classroom Program, 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 helps University faculty members develop and administer new programs for study abroad and strengthens a liaison between the University and international consortiums with which it collaborates. Staff members maintain a resource library with extensive information on study and work abroad. They also help students choose study abroad programs suitable to the students' interests and academic needs, and they help ensure that students receive the proper 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), International Student Identity Card, Presidential Scholarships for Study Abroad, 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. Before leaving the United States, students should obtain approval of all transfer credit from non-University of Iowa programs by completing a Study Abroad Credit Approval form.

Information on transfer credit, financial aid, and other study abroad programs is available at the OIES Study Abroad Center, in the International Center.

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 in Austria (arr., see “German”)
- 15:303 Regents Hispanic Institute (arr., see “Spanish and Portuguese”)
- 000:015 International Student Exchange Program arr.

Study on reciprocal exchange at foreign universities worldwide; some instruction in English. Year-long, one semester, or summer options. In many cases, good command of a foreign language required. Prerequisites: 40 s.h. earned and 3.00 grade-point average.

- 000:006 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, social sciences, physical sciences, business, and engineering. Prerequisites: 40 s.h. earned and 3.00 grade-point average.

- 000:108 Japan Exchange Program arr.

Intensive Japanese language and area studies at the Center for Japanese Studies, Nanzen University, Nagoya, Japan or degree course work at Meiji University, Tokyo, for students proficient in Japanese. Meiji University exchanges are open to graduate students. Prerequisite: 3.00 grade-point average.

- 000:109 Dance Studies Exchange arr.

The Rotterdam Dansacademie (Netherlands), the Swedish National College of Dance, or the London Contemporary Dance school; technique, choreography, studio and/or theory courses. One semester, junior or senior standing required. Prerequisites: 3.00 grade-point average.

- 000:112 University of Iceland Exchange Program arr.

Icelandic studies, modern Icelandic language. Academic year. Prerequisites: 24 s.h. earned and 3.00 grade-point average.

- 000:117 Frankfurt Exchange Program arr.

Regular degree course work at Johann Wolfgang Goethe University, Frankfurt, West Germany; taught in German. Academic year. Arranged through College of Business Administration. Prerequisite: at least two years of college German and business background.

- 000:119 Vienna Exchange Program arr.

Regular degree course work in business administration and economics at Wirtschaftsuniversitat in Vienna, Austria; taught in German. Arranged through the College of Business Administration. May be repeated: prerequisite: at least two years of college German, or equivalent.

- 000:005 Iowa Regents Semester in Wales arr.

University of Swansea, Wales; three-week interdisciplinary course on British life and culture, followed by regular degree course work in the humanities, social sciences, physical sciences, business and engineering. Fall semester. Prerequisite: 2.80 grade-point average.

- 000:810 CIEE Spain Program arr.

Five programs in Seville and Alicante address specific language proficiency levels and academic interests. Prerequisites vary.


Intensive Spanish language at beginning level; advanced language, civilization, literature at intermediate level; intensive Basque language; some courses taught in English; two program sites — Bilbao, San Sebastian. Prerequisite: 2.50 grade-point average.
Films and contemporary French culture; interdisciplinary and field-based study with course work in Spanish language, cultural medicine, public health, medical sociology, Afro-caribbean culture, history of the Caribbean, Latin American film, independent study. Summer/fall. Prerequisites: 2.50 grade-point average; and one year of Spanish (summer), or two years of Spanish (summer and fall), or three years of Spanish (full).

000:817 CIC Program in Mexico arr.
University of Guanajuato; Spanish language, literature, art, and Latin American studies; homestays with Mexican families. Summer. Prerequisites: three years of college-level Spanish and 3.00 grade-point average.

000:818 CIC Program in Quebec arr.
Laval University; French language, Quebec culture; home-stay with Francophone families or dormitory accommodations. Summer. Prerequisites: one year of college-level French and 3.00 grade-point average.

000:820 Ireland in Comparative Perspective arr.
Interdisciplinary, comparative study of modern Ireland at the Queen’s University of Belfast, with emphasis on issues of peace and conflict in a divided society. Fall semester. prerequisite: 3.00 grade-point average.

000:821 University of Ibadan (Nigeria) Exchange arr.
Courses taught by University of Ibadan and UI professors; contemporary Nigerian culture(s), with focus on issues confronting developing countries, Summer; occasional spring semester exchange.

000:823 Program in comparative Law in Bordeaux, France arr.

000:824 London Law Consortium arr.

000:825 Semester in Venezuela, Universidad de los Andes arr.
Accelerated language study and other work in collaboration with the Universidad de los Andes, Merida; includes courses that may be applicable to GE requirements in foreign civilization and culture and humanities. Offered spring semester. Prerequisites: one semester of Spanish and 2.50 grade-point average.

000:826 Summer Art Program in Italy arr.
Printmaking and drawing courses in collaboration with the Scuola Internazionale de Grafica; cultural and artistic introduction to Venice and surrounding area; for students at all levels of artistic accomplishment.

000:827 Introduction to Japan/Korean Business and Technology arr.
Intensive summer program in Japanese and Korean academic, technological, and business systems; practicalities of international technology transfers, business transactions in East Asia.

000:828 ACTR Program Russia arr.
Russian language programs at institutions in Moscow, Leningrad. One semester of academic year or summer. Prerequisite: three years of college-level Russian or equivalent.

000:829 London Performance Study arr.
Internship positions. Cooperative education also give students an inside look at different kinds of organizations and professional work areas. With the approval of faculty members and monitoring by center staff, many students are able to obtain an internship position.

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, located in Phillips Hall, offers 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.

The office also provides programs on resume and cover letter preparation, job search techniques, and interviewing skills. Its Employer Literature Room offers information on employers, salaries, and employment trends.

Careers Day, a cooperative event held each fall, offers students the opportunity to meet with more than 150 employers. A Summer Job Fair is held each spring semester.

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

Center for Career Development and Cooperative Education

This center helps University students and alumni 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, DISCOVER, which is accessible at 17 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 an opportunity to work in personal conferences with teachers, who offer comments and suggestions to help the students become perceptive, critical readers of their own writing as they learn how to develop their ideas clearly and cogently.

Steady students may enroll for noncredit work in the lab throughout the semester. Or they may register for the credit course 10:9 Rhetoric (no credit toward degree) before or after taking a required rhetoric course, or transfer to 10:9 Rhetoric from another rhetoric course after conferring with their rhetoric teacher and the director of the Writing Lab.

Registrar

The Office of the Registrar determines the residence status of each student, issues University identification cards, supervises registration procedures, provides and publishes
course information, and coordinates commencement and academic special events programs. It assesses fees and fee adjustments, maintains all students’ academic records, and issues official transcripts and verifications. The registrar’s office issues degree evaluations for undergraduate students and helps students determine graduation requirements, submit applications for degrees, and interpret college and University academic policies. It provides assistance to students on Selective Service and military service matters, and it helps student veterans apply and enroll at the University and secure receipt of their Veterans Affairs benefits.

**Transcripts**

Students who have completed work at The University of Iowa can obtain an official transcript of that work upon request to the Office of the Registrar. Fees are $3 per transcript. For an additional $2 charge, students with proper identification can obtain immediate transcript service. An official transcript cannot be issued for a student who has a past-due University account.

**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 two federal TRIO programs, New Dimensions in Learning and the Upward Bound Project. Both serve first-generation college students, students from low-income backgrounds, and students with disabilities. The Undergraduate Educational Opportunities Program (UEOP) is designed to provide academic planning services and personal support to students from populations that are historically underrepresented in higher education.

New Dimensions in Learning provides direct academic support to eligible students through individual tutorials, small-group sessions, and academic skill development activities. The Upward Bound Project helps eligible high school students prepare for postsecondary education. Numerous part-time student employment opportunities are available through these programs.

**GENERAL SERVICES**

**Campus Information Center**

Located in the terrace lobby of the Iowa Memorial Union, the Campus Information Center provides information about campus and community activities and University services and operations; refers inquiries to appropriate campus and community resources; and compiles the master calendar of campus events. Other services include a taped information system and a tutor referral service. The center also operates the Housing Clearinghouse, which provides up-to-date listings of available rental units and city and campus maps, and lists realtors, hotels, motels, and apartment complexes. The center is open seven days a week.

**Campus Programs & 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 Government (UISG), 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 Latino Native American Cultural Center.

**Cultural Centers**

**Afro-American and Latino Native American Cultural Centers**

The University operates the Afro-American Cultural Center and the Latino Native American Cultural Center under the auspices of the Office of Campus Programs and 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 African-American artists and has study areas, a kitchen, and a library of publications by African, African-American, and Third World authors.

The Latino 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, cross-country, field hockey, golf, gymnastics, rowing, 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.

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, coed swimming, football, 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 Bookstore; the Student Information Center, with check cashing service and a U.S. Postal Station; the Office of Campus Programs and Student Activities; the Wheelroom, which offers rental entertainment; a recreation area with billiards and electronic games; an arts and craft resource center; a bookstore; rooms 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.

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 sciences 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 Service. Students registered for 0-4 semester hours may choose to pay the health fee to receive the same care. Students registered for 0-4 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.

All 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 personal counseling and therapy in individual, couple, or group sessions. Career counseling, learning disability assessment, outreach programs, and workshops also are available. UCS also offers programs, workshops, and consultation services to University offices and departments. Most UCS 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 the educational, cultural, social, and personal needs of University and community women. Through its feminist programs and services, the center’s staff is committed to empowering Iowa women by providing counseling, advocacy, information and referral assistance, support and discussion groups, and educational programs. The center also provides do-it-yourself legal kits, publishes a monthly newsletter, and maintains the Sojourner Truth Library.

Many graduate and undergraduate students participate in one or more of WRAC’s formal volunteer training programs; some use these opportunities for career exploration and resume building.

The center serves as a resource for many women’s organizations and encourages community building. It strives to provide an atmosphere where differences of race, ethnicity, gender, age, economic status, sexual orientation, religion, and individuality are welcomed and celebrated.
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 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 1996-97 academic year are $3,668 for a non-airconditioned double room and $3,405 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 who submit their applications by May 15 for the following academic year, October 15 for spring semester, and March 15 for summer session. After these deadlines, applicants are accepted first-come, first-served.

The University provides 749 unfurnished 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 school bus transportation for children in Hawkeye Drive and Hawkeye court.

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.

Monthly rents for the 1996-97 academic year are $223 for efficiencies, $272 to $290 per month for one-bedroom units, and $325 to $400 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 complete, 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

The University campus is home to 23 undergraduate social fraternities and 18 undergraduate social sororities. Chapter houses, which accommodate 35 to 60 people each, are operated by 18 fraternities and 13 sororities.

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, Omega Psi Phi, Phi Beta Sigma, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Psi, Phi Kappa Kappa, Phi Kappa Phi, Alpha Epsilon, Sigma Nu, Sigma Phi Epsilon, and Tau Kappa Epsilon.

Undergraduate sororities include Alpha Phi Omega, Alpha Delta Pi, Alpha Kappa Alpha, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Sigma Theta, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Pi Beta Phi, Sigma Gamma Rho, Sigma Lambda Gamma, Zeta Phi Beta, and Zeta Tau Alpha.
CODES, POLICIES, AND STUDENTS’ RIGHTS

Code Of Student Life

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 precepts 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, sexual orientation, gender identity, and any other classifications that deprive a person of consideration as an individual, and that equal opportunity and access to facilities shall be available to all. Among the classifications that deprive a person of consideration as an individual are those based on associational preference. These principles are 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, advisor, 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.

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.

Division 1. Sexual Harassment

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

- **Research and Interdisciplinary Activities**...29
- **Center for International and Comparative Studies**...36
- **University Libraries**...37
- **The University of Iowa Health Sciences Center**...38
- **The Iowa Center for the Arts**...41
- **Museum of Natural History**...44
- **Old Capitol**...44
- **Other Services**...44

---

Adjusting a superconducting spectrometer at the High Field Nuclear Magnetic Resonance Facility
RESEARCH AND INTERDISCIPLINARY ACTIVITIES

The University of Iowa 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

- provides leadership to develop and maintain the institutional infrastructure for the proper conduct of research;
- helps faculty, staff, and students obtain external financial support for research, training, and public service activities that are consistent with the University’s mission;
- identifies high-priority national and state research, training, and public service needs related to the University’s mission;
- communicates information about those needs to appropriate faculty, staff, and/or students and helps develop proposals for projects that meet those needs;
- assures coordination of large-scale multidisciplinary projects that go beyond established departmental or collegiate working relationships;
- brokers working relationships and support for research among various constituents involved in the University’s research mission, including individual researchers, investigative groups, and public and private research sponsors;
- monitors and influences federal legislation and regulations to enhance the University’s position as a major educational and research institution;
- fosters interdisciplinary and collaborative research and service by providing faculty assistance, supporting research colloquia, and developing support for other forms of advanced study that cross traditional disciplinary lines;
- stimulates and manages transfer of University intellectual property to the private sector;
- stimulates and facilitates the use of University of Iowa research, expertise, and facilities for the benefit of the local, regional, state, and national economies;
- continues to develop the Oakdale Research Campus as a dynamic resource that supports the University’s research mission.

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, four representatives 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 awards are designed to provide support for several University-wide programs, including:

- travel expenses associated with external research activities;
- equipment and materials to be used in the course of research;
- travel expenses associated with conferences and workshops.

Research Incentive Program

The Research Incentive Program (RIP) is a pilot research support program administered jointly by the vice president for research and the vice president for finance and university services. Funds are allocated to University of Iowa colleges in proportion to indirect costs for federally funded research incurred by the University and recovered from the federal government. The manner in which RIP funds are disbursed is left to individual colleges, however, the funds must be used in direct support of collegiate research.

Incidental Grants

Limited funds also may be 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 investigators concerning proper husbandry and biomedenology 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 facility-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, autoradiograms, films, video signals, videotape, microscopic images can be 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 TOP, 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 is also available.

Electron Microscopy Facility

The Electron Microscopy Facility provides instrumentation and technical assistance to research programs 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-2460N variable pressure scanning electron microscope equipped with a cryostage, backscattered electron detector, and a Kevex EDS system; a Hitachi S-4000 field emission scanning electron microscope equipped with a Kevex ED System and a backscattered electron detector; Hitachi H-600 and H-7000 transmission electron microscopes equipped with STEM and a Kevex EDS system, a cryostage, electron diffraction, and tilting and rotational holders; a Bio-Rad MRC-1024 laser scanning confocal microscope equipped with a krypton/argon laser, dual detection systems, optical disk storage, freeze-frame camera, color printer, and a heating/cooling stage; a Digital Instruments Nanoscope II scanning probe microscope; a Balzers 301 freeze-fracture apparatus; an Autotechnicon tissue processor; a Bio-Rad SEM dehydrator; a Bio-Rad critical point dryer; an EMITECH sputter coater; a Balzers freeze-substitution system; four Reichert ultratrac-E ultramicrotome including an FC-4D cryosectioning apparatus; A.O. parafin microtomes; an Oxford vibratome; a Reichert cryostat; LKB glass knife makers; diamond knives; a Leitz Dia LTD 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 BioRad plasma ash; an Emetech carbon coater; a Hitachi vacuum evaporator; a Wescor osometer; 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, 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 NMR 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, provides very high spectral resolution and sensitivity 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 5nm 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 (HRMS) Facility, located in the Chemistry Building, provides information about molecular weight, elemental composition, and molecular structure of samples. HRMS facility offers a range of capabilities that includes identification of species in complex mixtures, analysis of very large, polar, nonvolatile compounds, and determination of the accurate mass of compounds.

The facility consists of three major mass spectrometers. The first is a VG ZAB-HF high-resolution mass spectrometer with capabilities for electron impact (EI), chemical ionization (Cl), gas chromatography-mass spectrometry (CG-MS), and fast atom bombardment (FAB), in which both positive and negative ion analysis is possible. High resolution exact mass measurements are obtained with the ZAB-HF through EI and FAB ionization methods. The instrument has a mass range of 3500 deletons (u).

The second instrument is a VG TRIO-3 triple quadrupole mass spectrometer interfaced with a high-performance liquid chromatographic system (HPLC). Ionization modes available on the TRIO-3 include EI, CI, FAB, and thermospray (TSP). This instrument makes possible mass spectrometry-mass spectrometry (MS-MS) and tandem mass spectrometry experiments, which can be used for structure elucidation.

The third instrument is a VG TRIO-1 single quadrupole mass spectrometer for routine, low-resolution EI and GC-MS experiments. After a brief training session, interested University researchers have the opportunity to analyze their own samples. This hands-on feature is unique to the University’s HRMS facility.

A fourth instrument, expected to be in operation by fall 1996, is a high-resolution mass spectrometer with capabilities similar to those of the ZAB-HF. It also will provide electrospray (ESI) and atmospheric pressure chemical ionization (APCI), ionization methods that will give the facility greater flexibility in analyzing a variety of biological and biomedical-related samples. ESI is especially useful for analyzing high molecular weight samples (mass range 3500 u) and will enhance the facility’s detection limits (picogram range).

University researchers can consult with the HRMS facility director about development of mass spectrometric strategies to help in research and interpretation of results.

Fermenter Facility

The Fermenter 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, sterilization, 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 Brewery Square, 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 16 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 3,000 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 sources of 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.

Individuals also may request searches of commercially available databases or may choose to do their own searches of funding databases through the research and technology transfer webpage at the University’s World Wide Web site. 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.

There are information resources on available grants, fellowships, and scholarships, ranging from very general directories to those 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 helps the University research community inform of new funding opportunities, and changes in program regulations, policies, and perspectives through:

- research and technology transfer information on the University’s World Wide Web site;
- individual contact, either by telephone, mailings, or consultation;
- “Grant Bulletin,” published in fyi, the University’s faculty/staff newsletter;
- weekly bulletins from 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 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 an interstate highway. Approximately 1,000 researchers, students, patients, staff, tenants, conference, and visitors use the campus daily.

In recent decades, the Oakdale campus has evolved from a patient care site 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 for Rural and Environmental Health, Iowa Geological Survey, 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 Obermann 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 173-acre parcel of land on the Oakdale Research Campus, includes a multitenant building that houses University magnet laboratories and growing companies affiliated with the Technology Innovation Center. The University Center for Biocatalysis and Bioprocessing, a magnet center for industrial biotechnology, is located in the Multi-Tenant Facility, as are College of Medicine laboratories.

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 for Computer Aided Design Software, Inc. and Neural Applications Corp. are located at the park.

A multibuilding complex, Myriad Technology Plaza, provides space for growing companies emerging from the Technology Innovation Center, small- or medium-size research and development firms, and research units of larger and/or established firms. Companies located in the Myriad Plaza complex include UroSurge, Inc., Iowa Biotechnology, Inc., and Stanley Environmental, Inc.

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 make use of advanced technology. Many 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’s Oakdale Research Campus, TIC provides congealing, 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 Drug Development

The Center for Advanced Drug Development (CADD) operates under the umbrella of the University of Iowa College of Pharmacy. Center staff members work in close collaboration with College of Pharmacy faculty members, the Division of Pharmaceutical Service, and the Iowa Drug Information Service.

The center performs a wide range of assays to obtain data for new and old drug substances and formulations. Among its capabilities are stability indicating assay development and validation, preformulation studies, in vitro testing of dosage forms, and stability studies. CADD also has a quality assurance program designed to ensure satisfaction of client-specific quality assurance as well as good laboratory and manufacturing practices of the U.S. Food and Drug Administration.

The center’s services are designed to benefit small or medium-sized pharmaceutical companies that do not have extensive scientific staff or facilities for certain types of studies, veterinary pharmaceutical companies, biotechnology companies, large pharmaceutical companies that periodically cannot pursue all of their projects internally, medical departments that require stability studies on new drugs or drug products under investigation, foreign pharmaceutical companies that lack familiarity with U.S. drug regulations and policies, and governmental agencies.

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 seven 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), fermentation, and bioremediation.

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

Center for Health Effects of Environmental Contamination

The Center for Health Effects of Environmental Contamination (CHEEC) is an interdisciplinary research, education, and service organization whose chief mission is to determine the levels of environmental contamination that can be associated specifically with human health effects. Established by the 1987 Iowa Groundwater Protection Act, the center develops and maintains environmental databases to be used in conducting health effects research, manages a seed grant program that supports health effects research, and provides a variety of environmental education and service programs to citizens of Iowa, the Midwest, and the nation.

University faculty members from the Departments of Civil and Environmental Engineering, Pediatrics, and Preventive Medicine and Environmental Health are affiliated with the center. CHEEC collaborates with the Iowa Departments of National Resources, Public Health, and Agriculture and Land Stewardship.

Injury Prevention Research Center

The University of Iowa Injury Prevention Research Center (IPRC) fosters interdisciplinary research on prevention and control of rural injuries. Based on available epidemiological data, the IPRC focuses on high-risk rural populations such as children, the elderly, farmers, and farm families. To prevent and control rural injuries in these populations, the IPRC supports research, education, training, and public policy development, with special attention to rural motor vehicle injuries and farm and other occupational injuries.

The IPRC is organized around three multidisciplinary cores, three dedicated research facilities, numerous research projects, and a pilot research grant program involving faculty members from four colleges and sixteen departments at the University. Faculty members from the Medical College of Wisconsin participate through subcontracts on research projects. The IPRC also supports the Midwest Injury Prevention Consortium, an organization dedicated to promoting and advocating injury prevention in Iowa and the Midwest and a national resource for rural injury prevention.
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 Iowa 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.

Iowa’s Center for Agricultural Safety and Health

Iowa’s Center for Agricultural Safety and Health is a partnership of The University of Iowa, Iowa State University, the Iowa Department of Agriculture and Land Stewardship, and the Iowa Department of Public Health. Headquartered at the Institute for Rural and Environmental Health at The University of Iowa, the center develops and coordinates programs statewide to reduce the inordinately high rates of farm-related fatalities, injuries, and occupational diseases and illnesses. As part of its state mandate, the center conducts research on risk factors for agricultural injuries and diseases to identify appropriate prevention strategies. In addition, it maintains an inventory of all agricultural health and safety initiatives in the state and serves as a hub of communication to ensure effective and appropriate use of resources for high-priority agricultural health issues.

Obermann Center for Advanced Studies

The Obermann Center for Advanced Studies 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 seminars. Many scholars are supported by major grants and fellowships or University of Iowa awards; others have teaching obligations but are on schedules that allow time for their center-based research. The center also has special interest in serving faculty of the two- and four-year colleges in the Iowa region.

The Obermann 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. Center for Advanced Studies Spelman Rockefeller (CASSPR) Grants support studies leading to the well-being of children and their families. Humanities Symposium Awards support interdisciplinary research conferences.

For faculty members seeking internal or external grants, the center helps in identifying collaboration 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.

Obermann Center scholars are provided a private office, a computer and printer, links to the Internet, and many support services, including a library delivery service that locates and copies journal articles.

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 (climatic forcing) and the feedback effects on the regional and global scale are considered.

Iowa Birth Defects Registry

The Iowa Birth Defects Registry is a statewide population-based birth defects reporting system that uses multiple sources of case ascertainment. At the core of this system is an active method for abstracting hospital records of children identified with birth defects during the first year of life. The system is comparable to other advanced birth defect surveillance programs in the United States, such as those of the Metropolitan Atlanta Congenital Defects Program and the California Birth Defects Monitoring Program.

The birth defects surveillance system operates statewide and has allowed for the collection and description of data since 1983. Registry data have been used for a variety of analytic studies, including those on reproductive health effects of environmental contamination. The program has developed the ability to conduct investigations on a wide variety of public health issues—investigators whose results may have wide-ranging public health and policy implications.

Optical Science and Technology Center

The Optical Science and Technology Center offers University scientists and engineers from a wide range of disciplines the opportunity to collaborate on important and complex research problems in broad areas of optical and laser science. The center’s primary goals are to promote research efforts and foster cross-disciplinary activity in areas of basic and applied optical science; attract highly qualified students who are interested in optical science and technology; pursue funding opportunities for multidisciplinary research projects in optical science and technology; and promote collaboration with industry in activities related to development and application of optical technology.

Faculty members from the Departments of Biomechanical Engineering, Chemistry, Chemical and Biochemical Engineering, Electrical and Computer Engineering, and Physics and Astronomy pursue a wide range of research under the center’s wing.

A major effort at the center lies in the growth and characterization of novel materials and devices with unique electronic, optical, mechanical or biological properties. Some of these materials are grown by molecular beam epitaxy or chemical vapor deposition and include artificially layered semiconductors (quantum wells, dots, wires and semiconductor superlattices). This materials growth effort is enhanced by close interactions with other groups using ultrastiff laser scattering techniques for the characterization of important optical and electronic material properties, and efforts aimed at the fabrication of micrometer and nanometer scale structures for optoelectronic devices and integrated circuit applications.

Funding to support center research comes from a variety of federal, state, and private sources, including the National Science Foundation, the National Aeronautics and Space Administration, the Office of Naval Research, the National Institutes of Health, and the Petroleum Research Fund.

While the center does not offer a separate degree, interested graduate students may participate in its research activities as part of a graduate degree program in any of the participating departments. For more information about graduate study and research opportunities, contact the Optical Science and Technology Center.

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.

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

Dews 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 Insurance Education and Research: College of Business Administration
Institute for Quality Health Care: College of Medicine
Institute for Rural and Environmental Health: College of Medicine
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
Biostatistics 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 Asian and Pacific Studies: Office of the Provost
Center for Computer-Aided Design: College of Engineering
Center for Evaluation and Assessment: College of Education
Center for Gene Transfer: College of Medicine
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 New Music: College of Liberal Arts
Center for Nursing Classification: College of Nursing
Center for the Study of Group Processes: College of Liberal Arts
Center for the Study of Recent History of the United States: University Libraries
Center of Excellence in Pediatric Nephrology and Urology: College of Medicine
Center on Aging College of Medicine
Cleft Palate Research Center: College of Medicine
Clinical Research Center: College of Medicine
Cochlear Implant Clinical Research Center: College of Medicine
Comparative Legislative Research Center: College of Liberal Arts
Craniofacial Anomalies Research Center: College of Medicine
Cystic Fibrosis Research Center: College of Medicine
Hazardous Substances Research Center: College of Engineering
Iowa Center for Communication Study: College of Liberal Arts
Iowa Center for the Book College of Liberal Arts
Iowa Center for the Study of Recent History of the United States: University Libraries
Iowa Consortium for Mental Health Services Training and Research: College of Medicine
Iowa Consortium for Substance Abuse Research and Education: College of Medicine
Iowa Geriatric Education Center: College of Medicine
Iowa Institute for Research: College of Medicine
Iowa Urban Community Research Center: College of Liberal Arts
James A. Clifton Center for Digestive Diseases: College of Medicine
Law, Health Policy, and Disability Center: College of Law
Manufacturing Productivity Center: College of Business Administration
Mental Health Clinical Research Center: College of Medicine
Midwest AIDS Training and Education Center (MATEC), Iowa Site: College of Medicine
National Center for Voice and Speech: College of Liberal Arts
National Maternal and Child Health Resource Center: College of Public Health
National Resource Center for Family-Centered Practice: College of Liberal Arts
Oral and Maxillofacial Implant Center: College of Dentistry
Oral Mucosal Disease in Aging Center: College of Dentistry
Preventive Intervention Center: College of Medicine
Science Education Center: College of Education
Small Business Development Center: College of Business Administration
Specialized Caries Research Center: College of Dentistry

Laboratories

Bone Healing Research Laboratory: College of Medicine
Laboratory for Photonics and Quantum Electronics: College of Engineering
Orthopedic Biochemistry and Cell Biology Laboratory: College of Medicine
Orthopedic Biomechanics Laboratory: College of Medicine
Perinatal Research Laboratory: College of Medicine
Translation Laboratory: Division of Continuing Education

Others

Biototechnology Byproducts Consortium: College of Medicine
Birth Defects and Genetic Disorders Unit: College of Medicine
Collaborative Studies of Affective Disorders: College of Medicine
Gerontology Projects: College of Liberal Arts
Iowa Libel Research Project: College of Law/College of Liberal Arts
Iowa Testing Programs: College of Education
Lipid Research Clinic: College of Medicine
Office for Rural Education Policy and Planning: College of Education
Pharmaceutical Service: College of Pharmacy
State Health Registry of Iowa: College of Medicine
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.)

Iowa Quaternary Studies Group

Director: Richard G. Baker
Professors: Richard G. Baker (Geology), Ann B. Budd (Geology), Russell Coscohen (Anthropology), Lon D. Drake (Geology), Brian F. Glenister (Geology), George P. Malanson (Geography), Holmes A. Semken (Geology)
Associate professors: Luis A. Gonzalez (Geology), Diana G. Horton (Biological Sciences), Frank H. Wernich (Geography), Mary Whelan (Anthropology)
Assistant professor: James Enloe (Anthropology)
Adjunct assistant professors: E. A. Betts III (Geology), William Green (Anthropology), R. Sanders Rhodes (Geology)

Programs and Facilities

Students working towards master’s and doctoral degrees in the Departments of Anthropology, Biological Sciences, Geography, and Geology may develop programs emphasizing some aspect of Quaternary studies. Students with interests in Quaternary studies are encouraged to broaden their programs with courses in these collateral sciences as they progress toward a degree ‘in their chosen fields.

Research by faculty and students includes paleoecological and paleoclimatological studies using pollen, vascular-plant macrofossils, bryophytes, mollusks, insects, vertebrates, and oxygen and carbon isotopes in cave stalagmites; studies of glacial geology, geomorphology, and stratigraphy; fluvial geomorphology, paleohydrology, and stratigraphy; soil stratigraphy and geomorphology; paleo-oceanography of reefs and shorelines; studies in wetland distribution, geography, and ecology; studies of hunter-gatherer societies and their environments; and studies of cultural development and its relation to environmental 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 Palaeontological 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 2,700 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 course work, research, and consultation with one or more other departments. The weekly Quaternary Seminar 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, or Geology or to the director of the Quaternary Studies Group.

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 regarding 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 alternately on topics of general theoretical interest or those addressing a specific culture and moment. The Proseminar in Cinema and Culture (36F: 112 or 48:112) gives undergraduates and graduate students the opportunity to prepare for the symposia through weekly readings and screenings.

The institute publishes the bilingual journal IRIS.

Office of the State Archaeologist

The Office of the State Archaeologist (OSA) develops, disseminates, and preserves knowledge of Iowa’s prehistory and history through archaeological research, service, and education. 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 works 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 participate in a variety of laboratory studies 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 8,500 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 located in Eastlawn.

Project on Rhetoric of Inquiry

The Project on Rhetoric of Inquiry (POROI) involves faculty and students from across the campus in studies of the argumentative and linguistic bases of scholarship and the conceptual dimensions of culture, primarily the ways in which ideas and concepts are formed and articulated discursively. 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’s initiatives and programs, which include the Faculty Rhetoric Seminar, the Interdisciplinary Certificate Program in Rhetorics of Inquiry (for graduate students), scholar workshops, conferences, symposia, and publications. University of Iowa faculty with broad textual interests in both intentional and stylistic aspects of rhetorical study advise and participate in the program.

The Rhetoric seminar was founded in 1980 by a small group of Iowa faculty members. The group grew to include some 100 colleagues, who participate in the interdisciplinary seminar and in other seminars on a range of topics. Before each seminar, POROI distributes discussion papers to faculty members from many University of Iowa departments and from other colleges in Iowa.

POROI directs two book series, one at the University of Wisconsin Press and the other at
the University of Chicago Press. The project also sponsors lectures and research projects. Iowa faculty members associated with POROL teach undergraduate and graduate courses inspired by rhetoric of inquiry.

CENTER FOR INTERNATIONAL AND COMPARATIVE STUDIES

The Center for International and Comparative Studies (CICS) is at the center of interdisciplinary international studies at The University of Iowa. CICS sponsors more than 150 public programs a year, administers 10 degree and certificate programs, supports collaborative research projects, encourages international travel to and from the University, and engages in other activities to promote international scholarship. Since 1985 CICS has been a designated National Resource Center for International Studies, one of 19 nationwide. As a National Resource Center, CICS uses its programs to make the University’s human and scholarly resources available to Iowa, the Midwest, and the nation. At the same time, it encourages instructional innovation, provocative research, and advancement of international and comparative studies in each of the University’s 10 colleges.

CICS is linked administratively to the Office of the Provost. Its offices and classrooms are located in the International Center. Information about CICS events, interdisciplinary programs and projects, affiliated programs, personnel, degree programs and classes, publications, and resources for teachers is available on the CICS home page of the University’s World Wide Web site.

Interdisciplinary Programs

A number of interdisciplinary programs are represented in CICS. Five are area studies programs, all offering degrees or certificates through the College of Liberal Arts: the African Studies Program (ASP), the Global Studies Program (GSP), the Latin American Studies Program (LASP), the Russian, East European, and Eurasian Studies Program (REEES), and the South Asian Studies Program (SASP). Several are topical programs and projects, offering instruction and research opportunities within a broad range of disciplines and across colleges: the Foreign Language Acquisition Research and Education Project (FLARE), the Program in Gender, Culture, and Politics (CCP), the Global Health Program (GHP), the Project for International Communication Studies (PICS), and the Program for International Development (PID). Two are major externally funded projects that explore the frontiers of teaching and research: the Bridging Project in International Studies, funded by the Ford Foundation, and the International Forum for U.S. Studies, funded by the Rockefeller Foundation.

Area Studies Programs

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

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

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

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. CICS 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 interdepartmental 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 offer a graduate research seminar each academic year.

Topical Programs

The Foreign Language Acquisition Research and Education Project (FLARE) focuses on foreign/second language acquisition, language pedagogy and teacher training, instructional technology, language assessment, and cultural studies. Exploring the relevance of various unfamiliar disciplines to researching and teaching foreign cultures, the project brings theories and methods from fields such as art history, education, law, and sociology to bear on languages and culture studies. An interdisciplinary Ph.D. degree program in Foreign Language Acquisition is planned.

The Program in Gender, Culture and Politics (CCP) focuses on the theme of women and social movements, promoting research and study of gender issues. The program offers lectures, conferences, and seminars, supports curricular 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 Health Program (GHP) is an interdisciplinary program for students interested in pursuing a career in or related to international health and the environment. The program offers a certificate program designed for undergraduates and graduate students. Certificate students are expected to fulfill all degree requirements of their own plan of study. In addition, they are required to complete 25 semester hours of core and elective courses, foreign study, or internship abroad, and to present a health-related research project. Through workshops and seminars, students have the opportunity to engage in dialogue with international health professionals; career counseling and international scholarships and internships are also available.

The Project for International Communication Studies (PICS) concentrates on acquiring and distributing international television materials and on developing curricular materials for 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, videodiscs, and software for both structured classroom work and individual or personal use and publishes a variety of written materials to accompany them. The project also has sponsored lectures, teleconferences, workshops, and national and regional conferences.

The Program for International Development (PID) promotes instruction, research, 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. A Distinguished Visiting Professional Program brings experienced and highly qualified non-academics — professionals, public officials, and representatives from the private sector— to the center for a one-semester residency each year. 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.

Major Externally Funded Projects

The Bridging Project in International Studies is a collaboration between the University of Iowa and Grinnell College, funded in part by a grant from the Ford Foundation. It is an intellectual endeavor that seeks to expand faculty knowledge and skills and to strengthen international studies. The project’s centerpiece comprises interdisciplinary study groups and summer seminars in which faculty and students engage in intense and sustained conversation about emerging international issues.

The project was founded in 1991 and by the year 2000 will have funded 16 interdisciplinary groups. It also funds other collaborative initiatives, including joint teaching and research. Recent bridging project seminar themes have included “Bridging the Black Atlantic: Literary and historical perspectives on the relationship between Africa and African America,” “Sustainable development and the global environment: Biodiversity,” and “Partisanship and traditional technology.”

The International Forum for U.S. Studies was conceptualized jointly by CICS and the American Studies Program. It takes
contemporary U.S. discussions of cultural diversity, a new world order, and multiculturalism one step further by promoting culturally and nationally diverse research and writing on the United States. The forum seeks to promote scholarship by non-U.S. scholars on social and cultural issues shaping or affecting the United States. Its overarching theme is selective claims to difference and sameness and the values, effects, and material consequences attached to each.

Funded by the Rockefeller Foundation, the forum is a Rockefeller Humanities Residency site for five non-U.S. scholars each year from 1997 to 1999. Scholars are in residence at CICS each spring to participate in faculty seminars, public forums, and discussions. Specific themes for the three-year period include the public production of American culture through institutions, practices, cultural policies, and events; American samenesses, both shared aspects and presumptions of sameness that are made, claimed, denied or unnamed; and critical discourses on American exceptionalisms, as seen both from within and without.

Affiliated Programs

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

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 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, research fellows, and international writers are invited to spend from one month to a semester in residence at the center annually. They teach courses, offer workshops, seminars, and lectures, and do their own research.

CICS also sponsors a Scholar Affiliate Program, a network of local non-University of Iowa scholars who pursue international and/or cross-cultural research.

Instructional Programs

The center supports instruction through courses, seminars, news colloquia, and curriculum development grants. In conjunction with academic units, it administers certificates in African studies, global health, global studies, and Latin American studies; undergraduate 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

Through its public programming, CICS brings together faculty, staff, students, the local community, and visitors to create ongoing dialogue on international issues. In conjunction with other University units and community organizations, CICS sponsors more than 150 public lectures, seminars, symposia, workshops, film festivals and conferences each year. It collaborates often with the Iowa City Foreign Relations Council, which airs lectures on local and state public radio, and presents a weekly brown bag lunch that features students, staff, faculty, visiting scholars, writers, artists, and CICS scholar affiliates. There also are weekly seminars on urban Africa, global health, the production of culture in South Asia, and contemporary issues in development.

Visiting scholars and professionals-in-residence at CICS present seminars and teach short courses at the University. They also lecture at other colleges and universities in the region. Each spring CICS hosts at least one writer-in-residence from the UI International Writing Program, who gives presentations on campus and travels across the state to lead workshops at senior centers, public libraries, and schools.

CICS also works with Area Education Agencies statewide and with the Iowa Global Education Association to provide training opportunities for educators. Several teacher training workshops are held each summer in collaboration with the Global Studies Program, the Institute for Cinema and Culture, and the University’s summer session. Recent themes have included “Labor in the global economy,” “Understanding Japan and China through film,” and “Internetworks in international studies.”

UNIVERSITY LIBRARIES

University librarian: Sheila D. Creth
Director, administrative and access services: Wayne Rawley
Director, collections and information resources: C. Edward Shreves
Director, information and research services: Barbara I. Dewey
Director, information systems and technology: Lawrence Woods
Coordinator, personnel and diversity services: Janice D. Simmons-Welburn
Access services: Susan S. Marks (coordinate), Keith A. Rageth
Automation (OASIS): Donna L. Hirst (head), Suzanne M. Munsinger
Bibliographers: Chris Africa, John B. Howell, James J. Julich, Timothy R. Shippe
Central processing services: Mary H. Monson (coordinate), David A. Aamod, Sanda S. Balkash, Ruth E. Christ, Judith K. Doorenbos, Grace A. Fitzgerald, Lawrence R. German, Mary K. Hubbard, Selma S. Lin, George P. Mullally, Eva K. Nikkanen-Hoch, Mary E. Noble, Kathleen B. Wachel, Marjorie G. Wilhite
Facilities management: Gary E. Grout (coordinate)
Financial department: William C. Sayre (coordinate)
Friends and public relations: Marguerite F. Perret (coordinate)

Government publications: Carolyn W. Kohler (head), Frank T. Allen, Marianne P. Ryan
Information, research, and instructional services: Anita K. Lowry (head), Loren R. Forbes, E. Ann Ford, Marsha A. Forbey, Rebecca L. Johnson, Charlene E. Lehman, James M. Loter, Helen B. Ryan, John N. Schacht, Paul A. Soderdahl
Iowa Women’s Archives: Karen M. Mason (curator), Tammy L. Lau, Kathryn M. Neal, Margaret E. Richardson
Map collection: Mary R. McNloy (head)
Preservation and conservation: Regina A. Sinclair (head), Pamela Spitzmueller, Richard S. Green
Special Collections: University Archives: Robert A. McCown (head), Richard M. Kolbct, Earl M. Rogers, David E. Schommer
Departmental libraries: Art; Rijn A. Templeton (head); Biological Sciences, John J. Dodd (head); Business, J. David Martin (head), Peter J. Hartford; Chemistry-Botany and Geology, Leo P. Clougherty (head); Engineering, John W. Forys (head); Hardin Library for the Health Sciences, David S. Curty (head), Hope I. Barton, James M. Dunac, Richard Eirns, James A. Kohler, Edwin A. Hokum, Rada Lesuja, Kathryn N. Rattenborg, Eric T. Runsey, Melanie L. Wilson; Music, Joan O. Falconer (head); Mathematical Sciences, Christine A. Lee (head); Physics and Psychology, Dorothy M. Persson (head)

The University’s Main Library and its 11 departmental libraries, plus the Law Library, contain more than 3.5 million volumes. Departmental library holdings are: art, 80,303 volumes; biological sciences, 42,227; business administration, 27,882; chemistry-botany, 86,852; engineering, 99,151; geology, 50,780; mathematics, 52,152; music, 86,633; physics, 50,424; and psychology, 61,048. The Hardin Library for the Health Sciences contains 260,521 volumes.

The Law Library is independent of University Libraries and is administered by the College of Law. See the College of Law section of the Catalog.

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 36 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 350,000 questions and help nearly 2.3 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 1994-95, more than 8,000 people participated in programs such as subject-based facultygraduate 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. Also available are 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 online 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 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 repository for the social sciences and the humanities.

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 Main Library’s Information Arcade facilitates 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), primarily for research and independent learning; multimedia stations, including Mac and IBM computers, laser disk players, CD-ROM players, videotape players, 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 the some 2,500 volumes in the collection. Martin, a retired neurosurgeon from Clarinda, Iowa, continues to add to this world-famous collection.

Based on the success of the Main Library’s Information Arcade, a similar facility has been established at the Hardin Library. Called the Information Commons, the Hardin facility incorporates a fully interactive classroom for 50 students and some two dozen sophisticated individual-shareable terminals in areas outside the classroom facility.

The University Libraries and the Law Library operate OASIS (Online Access System for Information Sources), an automated on-line catalog that contains more than 1.7 million records representing more than 70 percent of the cataloged collections of the libraries. OASIS greatly enhances teaching and research. Faculty and students have a sophisticated tool for accessing information on library materials. From one database, library users are 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 Committee on Institutional Cooperation (CIC) institutions (the Big Ten and the University of Chicago). Through these organizations, especially CIC, faculty members and students at Iowa have gained greatly increased access to materials held at other institutions. Through a CIC project known as the Virtual Electronic Library, users of the UI Libraries’ OASIS system can search the catalogs at other CIC institutions. The next step in the evolution of the Virtual Electronic Library will be the capacity to request information resources directly from other CIC institutions.

The University of Iowa Health Sciences Center lies on the western bank of the Iowa River, a complex of buildings dedicated to the health sciences programs and health services facilities of The University of Iowa. The center fulfills a long-standing commitment to educate and train health professionals, to foster interdisciplinary teamwork, to improve patient health and the quality of life, and to provide health care for the benefit of all Iowans.

The Colleges of Dentistry, Medicine, Nursing, and Pharmacy, the University of Iowa Hospitals and Clinics, and the University Hygienic Laboratory make up the Health Sciences Center. They provide the academic programs, clinical facilities, and service agencies that prepare students and practitioners to serve a wide spectrum of human health needs. The University of Iowa Health Sciences Center is simultaneously a center of learning and of service, especially for rural and other underserved areas of Iowa. It is one of the most advanced, comprehensive academic health sciences centers in the United States—a dynamic environment in which the discoveries of basic research are translated into innovative technology and the very latest patient treatment.

The Health Sciences Center shares its expertise 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 come to the Iowa campus to update their knowledge through conferences, clinics, and refresher courses, or to access information via distance learning.

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 and CEO: R. Edward Howell
Associate director and COO: John H. Staley
Associate director, external relations and legal services: William W. Hesson
Senior assistant directors: Alan J. Burgener, Amy B. O’Deen, William D. Stoddard
Assistant directors: Brandt Echtmeach, Jeanne M. Goche

Assistant to the director: Cerhild I. Krapf
Creelhoo, Jolene J. Sobotta Cole, Theodore J. Yank

Administrative associates: Kenneth A. Marx, Christine R. Menke

Director, financial management and control: Kenneth H. Yarington

Director, public information: Eldean A. Borg

Clinical service heads: Anesthesiology John H. Tinker; Hospital Dentistry, Daniel Lew; Dermatology, John S. Strauss; Family Practice, Evan W. Kligman; Internal Medicine, Francois Abboud; Neurology, Antonio R. Damasio; Obstetrics and Gynecology, Jennifer Niebyl; Ophthalmology, Thomas A. Weingeist, Orthopaedics, Reginald R. Cooper; Otorhinolaryngology, Head and Neck
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 2,500 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 845 beds in the hospital complex accommodate some 37,000 admissions annually, and 251 specialty clinics accommodate another 529,786 ambulatory patient visits. More than 16,000 major surgical procedures are performed annually in the hospital's 21 major operating rooms, and more than 1,300 infants are born at University hospitals each year.

Highly specialized health services—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 hospital's 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 aid the most critically ill and injured patients and to transport them to the hospital for treatment. Many Iowans owe their lives to this service alone.

About 7,500 hospital staff members provide professional and support services needed to care for approximately 2,000 patients each day. The hospitals' clinical staff includes 634 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 214,000 X-ray examinations and treatments, conduct more than 5.7 million laboratory tests, fill more than 1.3 million prescription orders, provide more than 150,000 physical therapy procedures, and prepare more than 31,000 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; urology and neurology inpatient units, clinics, and faculty offices; surgery and internal medicine inpatient units; cardiology clinic; 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 provides clinic and faculty offices for the Department of Surgery. The Colloton Pavilion also houses a burn treatment 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 services. 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 physical therapy and orthopedics services, 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 first occupant of the new Pomerantz Family Pavilion, the Eye Institute, began serving patients in February 1996. A new Family Care Center is scheduled to open in the Pavilion in 1997. Functioning collaboratively under the Departments of Family Practice, Internal Medicine, and Pediatrics, the Family Care Center will provide convenient primary health care for ambulatory clinic patients. Additional space in the Pomerantz Family Pavilion will provide for an Ambulatory Patient Renal Dialysis Suite; Geriatrics Clinic; Iowa Women’s Health Center; Ear, Nose, and Throat Institute; and a Dental Institute.

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 assistantship, 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 Radiology Technology Program 0-1 s.h.
Patient care and ethics, radiographic positioning, radiographic critique, medical terminology, radiologic physics, anatomy and physiology, radiographic technique, computer technology, radiation biology, radiographic processing, imaging equipment, quality assurance; supervised clinical education; two-year program; national board examination required at completion.

000:902 Orthotics Program 0 s.h.
Clinical science of the lower extremity, ocular motility, and related eye disorders; practical, theoretical training in the Department of Ophthalmology; two-year program; written, oral and practical national board examinations required at completion.

000:903 Radiation Therapy Technique 0 s.h.
Theory and techniques of radiation therapy technology; emphasis on areas of treatment planning, dosimetry, use of radiation-producing equipment to administer treatment; one-year program; national certification examination required at completion.

000:904 Ultrasound Technology Program 0 s.h.
Principles, methods in using ultrasound as an imaging modality; specialties including abdominal, obstetrical, gynecological, interventional procedures, vascular imaging and neurosonography; one-year program; national certification examination required at completion; prerequisite: completion of an accredited two-year allied health program or registered nursing program.

000:905 Ultrasound Technology Clinical Course 0 s.h.

000:906 Magnetic Resonance Imaging Technology 0 s.h.
Pathophysiology, physics, advanced sectional anatomy, instrumentation, supervised clinical education; nine-month program. National recognition examination recommended at completion of program. Prerequisite: completion of radiologic technology program.

000:907 Magnetic Resonance Imaging Clinical 0 s.h.

000:908 Vascular Imaging Technology 0 s.h.
Imaging equipment, pharmacology, sterile techniques, digital angiography, vascular monitoring, vascular anatomy and physiology, imaging procedures, interventional techniques, digital subgraphy; six-month program; national recognition examination recommended at completion of program. Prerequisite: completion of radiologic technology program.

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. 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 at a minimal cost. The Dental Health Bureau provides its newly revised pamphlet, Healthy Smiles—Healthy Children, free of charge to Iowa school systems. Posters for National Children’s Dental Health Month are provided by the American Dental Association and are distributed to schools.

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 15 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 300,000 volumes and receives more than 2,700 periodicals. In addition to providing ample space for these collections, the interior allows for enough reading and study space to accommodate approximately 1,000 people. 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 databases can be reached via workstations in the Hardin Library and from other computers networked and multimedia resources. The Hardin Library is equipped with free-standing computer workstations and is designed to be used for educating students, faculty members, and library staff members through the use of networked and multimedia resources. 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.

Visitors to complete. However, treatment by 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 15 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 300,000 volumes and receives more than 2,700 periodicals. In addition to providing ample space for these collections, the interior allows for enough reading and study space to accommodate approximately 1,000 people. 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 databases can be reached via workstations in the Hardin Library and from other computers networked and multimedia resources. The Hardin Library is equipped with free-standing computer workstations and is designed to be used for educating students, faculty members, and library staff members through the use of networked and multimedia resources. 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 for Rural and Environmental Health, and the Chemical Dependency Center.

Others include the dental research clinic, Animal Care Research Facility, biology laboratories, 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. Also at Oakdale is the Obermann Center for Advanced Study.

Seven health-related companies are tenants at the University’s Technology Innovation Center business incubator on the Oakdale Campus. A major University 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 in the Multi-Tenant Facility. Four health-related companies reside at 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, the 21-bedroom Iowa City Ronald McDonald House was opened to provide a home away from home for families of critically ill children receiving medical treatment at The University of Iowa Hospitals and Clinics. Many of these children and their families must travel long distances from their homes and are in Iowa City for prolonged stays. The Children’s Family Living Foundation, a not-for-profit corporation, operates the house with the assistance of more than 50 UIHC volunteers.

Since the Iowa City Ronald McDonald House opened, its occupancy has averaged 95 percent. More than 17,000 adults and children from 7,500 families have stayed there.

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, virology, 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 and animal blood and tissue 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 Pernatal 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, otorhinolaryngology, speech pathology, audiology, physical therapy,
nutrition, and clinical and educational psychology, CHISC 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 audiometry, 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, Meningomyelocoele 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, stuttering, voice, 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 graduate 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 remedial sessions, hearing aid services, and referrals to other clinics as needed.

Veterans Affairs Medical Center
Medical students, residents, and others in clinical-related fields receive much of their clinical training in this 198-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 and more than 25 outpatient primary and specialized services are provided, with some 6,000 admissions and more than 100,000 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
The University of Iowa is America’s pioneer in the integration of higher education and the creative arts. As the first university in the nation to grant thesis credit for creative work in the arts, The University of Iowa served as the model for the creative arts programs that now exist in many American universities and colleges.

The legacy of that leadership is found in the Iowa Center for the Arts, a collection of academic and performance units that constitute what may be the most extensive creative arts campus in the country, embracing the arts of fiction, poetry, playwriting, nonfiction writing, classical and contemporary music, jazz, theatre, ballet, modern dance, numerous disciplines in the visual arts, multimedia, television, film, arts education, and book arts.

Throughout the arts campus are programs and activities that embody the University’s commitment to creativity, including the Writers’ Workshop, the International Writing Program, the Center for the Book, the Center for New Music, the Composers Workshop, the Experimental Music Studios, and the Playwrights Workshop.

Gathered along the Iowa River are facilities that house the arts center’s academic, performance, and exhibition functions—Hancher Auditorium, the Museum of Art, the Theatre Building, the Voxman Music Building, Clapp Recital Hall, the Art Building, Halsey Hall, the English-Philosophy Building, and North Hall.

The arts center facilities include many contemporary arts units in the College of Liberal Arts, together with performance and exhibition 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, metalworking, 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 reliefs, and artists’ books and papers, the collection provides students, faculty and visitors with hands-on access to pivotal works and archival material of the post-World
War II period. It has generated topical workshops, exhibitions, interdisciplinary symposia, and publications. The Fine Arts Data 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 photographic collections of avant-garde visual works of the World War I era.

Dance Department

The Dance Department’s strength in both ballet and contemporary dance and its emphasis on both performance skills and artistic creativity make it distinctive among college dance programs.

Students in all dance styles find many performance opportunities each season. In the annual Dance Gala, the UI Dance Company performs in Hancher Auditorium, one of the Midwest’s finest dance stages. Students selected for the roster of Dancers in Company, the department’s touring repertory company, gain practical experiences similar to those encountered by professional touring companies. Faculty, student, and thesis concerts provide other creative and performance opportunities throughout the year, and many dance students also perform in productions of University Theatres and the UI Opera Theater.

Teaching opportunities for graduate and undergraduate dance students may be found in the Arts Share program, the Young Dancers Program, the Saturday Dance Forum, and through graduate teaching assistantships.

The many Hancher Auditorium dance performances by prominent companies each season provide a valuable resource to dance students, enabling them to observe and interact with dance artists of the highest level. On occasion, touring companies at Hancher have involved University of Iowa dance students in their performances, and many of the companies are engaged to provide open rehearsals, master classes, workshops, and lecture-demonstrations for dance students.

Housed in Halsey Hall, the Dance Department enjoys some of the finest teaching and rehearsal facilities in the nation, including five studios, two classrooms, an audiovisual room, and a 200-seat workshop and performance space in North Hall.

Teaching responsibilities are shared by seven full-time faculty members and from four to eight teaching assistants. Each year the department schedules a series of guest-artist residencies, in which leading dance professionals teach and create new works of choreography.

Ninety percent of the department’s technique classes are accompanied by a staff of two full-time and several part-time musicians, and a full-time technical director attends to all of the department’s production needs.

The Dance Department has participated for the last two decades in the American College Dance Festival Association festivals, where University of Iowa choreography, productions, and student dancers have achieved regional and national recognition. The University hosted ACDA festivals in 1981, 1986, and 1993.

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 100 major public concerts, including performances by the University’s bands, orchestra, and choirs. Nearly 200 vocal and instrumental recitals are presented by students.

The school has produced opera since 1938. Like other major stage presentations, opera is interdisciplinary 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.

Center for the Book

The University of Iowa Center for the Book is an interdisciplinary program for the study and practice of traditional and nontraditional book arts and for study of the book as a cultural and historical artifact. The center provides a unique configuration of workshops designed for personal work or artistic collaboration and offers an academic and scholarly program that complements the workshops by focusing on the book’s histories, its role in culture, and contemporary theoretical approaches to its study, and related research. The center offers a graduate certificate in book studies/book arts and technologies (see “Center for the Book” in the Liberal Arts section of the Catalog.)

As an interdepartmental program, the center brings together faculty members and other specialists who have gained favorable recognition in the international book arts community. They teach classes, train apprentices, conduct research, and practice book crafts. In addition, University faculty members in history, classics, communication studies, English, and other academic areas also teach courses and work with the center’s academic curriculum relating to historical and cultural areas of book studies.

Close affiliates of the center include University Libraries’ Conservation Lab and Special Collections, the School of Library and Information Science, the School of Art and Art History, the Center for Credit Programs, and The Iowa Review. The center also sponsors lectures and exhibitions and cosponsors events with The University of Iowa Book Arts Club.

Writing Programs

The University of Iowa nurtures one of the most active literary centers in the country. Its academic writing programs and frequent public readings have inspired national literary media to rank Iowa City’s literary scene as second only to New York City’s.

The Writers’ Workshop, in the English Department, was America’s first college degree program in creative writing and continues to be one of the most selective graduate programs in America. The workshop served as the blueprint for the many creative writing programs that now flourish on campuses in the United States and abroad, and it remains the largest and most influential creative writing program anywhere. The Truman Capote endowed the Writers’ Workshop to administer the world’s largest annual prize in literary criticism.

A growing presence in the UI literary scene is the English Department’s respected program in nonfiction writing, which nurtures writers in the arts of personal essay, portraiture, and autobiography.

The Iowa Playwrights Workshop, described under “University Theatres,” is closely allied with the writing programs in the English Department.

In addition to degree programs in fiction, poetry, literary nonfiction, and playwriting, The
University of Iowa is home to the International Writing Program, a nonacademic residency program for established writers from other countries. Its participants range from emerging talents to writers who are among their countries' leading literary figures and writers of world stature.

Each fall the International Writing Program organizes a community of poets, fiction writers, essayists, playwrights, and journalists from around the world. At the University they live and interact with each other while working on writing and translation projects. They are accessible to the public through a series of readings, panel discussions, and other presentations.

In addition to being the largest foreign-writer residency program anywhere, the International Writing Program serves as an active advocate for imprisoned, persecuted, and censored writers. The importance of this unique program to international understanding has been recognized with the Nobel Peace Prize nomination.

**University Theatres**

The University of Iowa Department of Theatre Arts has been a pioneer in the study of all aspects of theatrical creation and production. While University Theatres produces many plays from the standard repertory, the department's emphasis is on the creation, development, and production of new works.

The Iowa Playwrights Workshop is recognized as one of the nation's leading programs in creative writing for theater. The department's special strength is the integration of this playwriting workshop with a full range of acting, directing, design, and technical resources. Student playwrights are able to refine their scripts through production-the most practical and effective way to develop plays while student actors, directors, and designers have an opportunity to grapple with the challenges of producing new work. Each season University Theatres presents as many as 40 new scripts in productions and readings.

This focus on new work is exemplified in the spring Iowa Playwrights Festival, which presents productions of a half-dozen of the workshop's best new scripts in a single week and gathers a group of distinguished theater professionals as respondents.

The department has also initiated a Partnership in the Arts program, which invites prominent theater artists to develop significant new works for the theater in collaboration with University students, faculty, and staff.

In addition to its busy schedule of University Theatres productions during the regular school year, the Department of Theatre Arts sponsors a professional Iowa Summer Rep season each year. Iowa Summer Rep has become unique by making each summer season a festival of works by a single contemporary playwright.

The Theater Building, which was expanded in the mid-1980s, is one of the finest and most versatile theater complexes in the country. In addition to E.C. Mabie Theatre, a traditional group of distinguished theater professionals as respondents.

Museum of M

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 faculty members, 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 19th- and 20th-century European and American painting, works on paper, and African art. Paintings number some 550, including Pollock's *Mural*, Max Beckmann's *Carneval*, and Joan Mire's 1939 *A Drop of Dew Falling from the Wings of a Bird*. The museum's 4,000 prints include impressions by James McNeill Whistler, Mary Cassatt, Rembrandt van Rijn, Henri Toulouse-Lautrec, and Francisco Goya; its collection of drawings represents artists from Francois Boucher to Mark Rothko.

The museum's collection of African art, which features more than 800 examples of art from west, central, and east Africa, represents the entire sub-Saharan continent. Begun with major gifts from the late Beatty and Max Stanley Muscatine, it is one of the most prized collections of the museum.

Other distinguished collections include 20th-century sculpture, European and American silver, contemporary American ceramics, 19th- and 20th-century photographs, and Oceanic, Pre-Columbian, and Native American art.

In the early 1960s, Owen and Leone Elliott of Cedar Rapids offered the University their extensive collection of 19th- and 20th-century paintings, prints, antique silver, and rare jade on the condition that a museum 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 businesses contributed funds for the museum's construction. Opened in 1969, the museum 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, which opened in 1976. 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 for visitors of all ages a variety of exhibition and educational experiences, ranging 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.

**Hancher Auditorium**

Hancher Auditorium is recognized nationally and internationally as a leading university-based center for the performing arts. The 2,500-seat multipurpose facility opened in 1972, and in its first quarter-century has hosted a total of more than three million audience members.

A major renovation in 1995 included improvements in parking, accessibility, and services for people with disabilities. In addition to a hearing augmentation system that has been in use for many years, the auditorium now is one of a handful of theaters in the country to offer audio description for people with visual impairment.

Hancher's programming is renowned for its quality, diversity, and innovation. Audiences from throughout Iowa and surrounding states are attracted to a packed schedule of Broadway shows, touring theater companies, classical and jazz superstars, the traditional arts of other cultures, family entertainment, and prominent dance companies. But while Les Miserables, Mikhail Baryshnikov, Stomp, and other big-name events attract sell-out crowds, Hancher's international reputation as a leader in the performing arts is based on its active cultivation and advocacy of new works and emerging artists.

Hancher has commissioned dozens of choreographers, composers, and playwrights and has presented the world and American premieres of numerous dance, theater, and music events. The auditorium is probably best known for its co-production of large-scale works by the Jeffrey Ballet, including *The Nutcracker* and the Jeffrey/Prince collaboration *Bilateral,* but its commissioning activities also have included multiproject associations with the Kronos Quartet, the Bill T. Jones/Amie Zane Dance Company, the Parsons Dance Company, the Paul Dresher Ensemble, Rinde Eckert, the Cleveland Quartet, and other artists.

A pioneer in arts education and outreach, Hancher sponsors artist residencies, performances, and master classes for school groups; seminars and symposia in conjunction with performances; and pre- and post-performance discussions. Also a Midwest pioneer in fundraising for the arts, Hancher's programming and commissioning is supported by the Hancher Auditorium Enrichment Fund, a growing endowment launched by a National Endowment for the Arts Challenge Grant, as well as by an expanding annual fundraising effort that is attracting support from businesses and individuals.

Hancher's innovative programming has attracted recognition from the International Society for the Performing Arts, Chamber Music America and the National Endowment for the Arts. The auditorium is one of 21 American arts presenters and one of only two university-based organizations profiled as "exemplary" by the
Association of Performing Arts Presenters in its book 21 Voices.

Hancher is also an educational laboratory that is the site of performances by the UI Opera Theatre, the UI Dance Company, the Old Gold Singers, the University Symphony, the Symphony Band, and ensembles of the All State Music Camps. The auditorium is a source of employment for dozens of University of Iowa students each year, and students qualify for discounts on tickets to virtually all Hancher events. Hancher traditionally is among the nation’s top university performing arts halls in student attendance as a percentage of its audience.

**Arts Share**

The University of Iowa’s Arts Share Program continues a longstanding University of Iowa tradition by providing arts education outreach programming to Iowa schools and community organizations through off-campus workshops and performances by faculty and graduate student artists. Arts Share features more than 100 artists from the School of Art and Art History, the Dance Department, the School of Music, the Department of Theatre Arts, and the Writers’ Workshop. Among their specialties are film writing and production, creative dance, movement, papermaking and bookmaking, vocal and instrumental music, pottery, storytelling, poetry and fiction writing, playwriting, and acting.

**MUSEUM OF NATURAL HISTORY**

The Museum of Natural History, located in Macbride Hall, is an outgrowth of the Cabinet of Natural History, established in 1858 by an act of the Iowa General Assembly. It is the oldest university museum west of the Mississippi River.

To meet the needs of the general public and the various natural science departments of the University, 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, functions, and programs of museums.

The museum’s 6,000-square-foot 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 historic Laysan 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 sandhill crane and the rare whooping crane as they appear on the prairie during migration. Mammal Hall exhibits are topically designed to illustrate the evolutionary biology and diversity of mammals. 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 ground floor exhibits; they include familiar groups such as insects and crustaceans, snails and clams, sea stars, and corals.

Ethnological exhibits in the museum present cultural artifacts from many parts of the world. Indian and Eskimo materials, including the Frank Russell Collection of beadwork and carved ivory received in the late 19th 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 by museum docents and can be arranged by advance reservation. The Museum of Natural History also supports curriculum outreach programming to area schools and sponsors a weekend lecture and field trip series for the general public. Natural history books and collection-related specimens, games, and craft items are available for purchase in the Iowa Hall gallery sales shop.

**OLD CAPITOL**

Iowa’s Old Capitol, a National Historic Landmark, has served Iowa for more than 150 years as a seat of government and education. Built in the early 1840s, 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 1920s 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 1840s. 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.

**Information Technology Services**

Information Technology Services (ITS) provides computing, voice, and networking resources and support for University of Iowa students, faculty, and staff. In other words, ITS provides many of the services used daily on campus, such as telephones, personal computers, electronic mail, access to the Internet and World Wide Web, advanced research computing, and support of administrative functions for class registration and grade reports.

Dial-in access to the campus network is being increased so that University faculty, staff, and students can use a personal computer and modem at their residence for electronic mail and other network-based activities. Students can access online resources using personal computers in Instructional Technology Centers (ITCS) located throughout the campus. ITCS contain specialized equipment, such as laser printers and image scanners.

Information Technology Services offers courses for commonly used word processors, electronic mail tools, statistical packages, database tools, graphics tools, and other computing needs. Its Help Desk provides free consulting on computers, software, phones, and other ITS-supported services.

ITS offers a broad spectrum of computing services in support of administrative functions, including student financial and academic records, library automation, central business office functions, and human resource services. It also provides services for researched, instructional developers, and for student projects. ITS staff members help people use media and visualization tools to capture, render, interpret, and present information for both walk-in projects and large-scale projects.

Through the campus network, researchers can
access high-performance computing facilities on
the Internet.
For more information, visit the ITS home page
at the University’s World Wide Web site.

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
10 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 (910) and KSUI-FM (91.7) 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 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.

The 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, 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
death; 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.

Following completion in 1992 of the
campus-wide Iowa Endowment 2000
Campaign, which has raised more than $250
million in support of endowed faculty chairs and
professorships, fellowships, scholarships, and
other human resources, the foundation
continues to work on numerous fund-raising
initiatives for broad-based needs throughout the
University. These priorities include student
financial aid, faculty and staff support, research
programs, and campaigns for new and
renovated facilities. In addition, the foundation
works with University faculty and staff members
on numerous projects and campaigns dedicated
to expanding private support for specific
collegiate and departmental priorities.

The 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,
College of Liberal Arts

<table>
<thead>
<tr>
<th>Department</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Military Studies</td>
<td>65</td>
</tr>
<tr>
<td>African American World Studies</td>
<td>66</td>
</tr>
<tr>
<td>African Studies</td>
<td>70</td>
</tr>
<tr>
<td>Aging Studies</td>
<td>72</td>
</tr>
<tr>
<td>American Indian and Native Studies</td>
<td>74</td>
</tr>
<tr>
<td>American Studies</td>
<td>75</td>
</tr>
<tr>
<td>Anthropology</td>
<td>77</td>
</tr>
<tr>
<td>Applied Mathematical and Computational Sciences</td>
<td>82</td>
</tr>
<tr>
<td>Art and Art History</td>
<td>83</td>
</tr>
<tr>
<td>Asian Languages and Literature</td>
<td>92</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>98</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>100</td>
</tr>
<tr>
<td>Center for the Book</td>
<td>105</td>
</tr>
<tr>
<td>Chemistry</td>
<td>106</td>
</tr>
<tr>
<td>Classics</td>
<td>109</td>
</tr>
<tr>
<td>Communication Studies</td>
<td>112</td>
</tr>
<tr>
<td>Comparative Literature</td>
<td>118</td>
</tr>
<tr>
<td>Computer Science</td>
<td>121</td>
</tr>
<tr>
<td>Dance</td>
<td>125</td>
</tr>
<tr>
<td>Economics</td>
<td>127</td>
</tr>
<tr>
<td>English</td>
<td>130</td>
</tr>
<tr>
<td>Exercise Science</td>
<td>136</td>
</tr>
<tr>
<td>French and Italian</td>
<td>141</td>
</tr>
<tr>
<td>Genetics</td>
<td>144</td>
</tr>
<tr>
<td>Geography</td>
<td>145</td>
</tr>
<tr>
<td>Geology</td>
<td>151</td>
</tr>
<tr>
<td>German</td>
<td>156</td>
</tr>
<tr>
<td>Global Studies</td>
<td>159</td>
</tr>
<tr>
<td>History</td>
<td>161</td>
</tr>
<tr>
<td>Interdepartmental Studies</td>
<td>166</td>
</tr>
<tr>
<td>Iowa Lakeside Laboratory</td>
<td>168</td>
</tr>
<tr>
<td>Journalism and Mass Communication</td>
<td>169</td>
</tr>
<tr>
<td>Latin American Studies</td>
<td>174</td>
</tr>
<tr>
<td>Liberal Studies</td>
<td>175</td>
</tr>
<tr>
<td>Library and Information Science</td>
<td>176</td>
</tr>
<tr>
<td>Linguistics</td>
<td>180</td>
</tr>
<tr>
<td>Literature, Science, and the Arts</td>
<td>183</td>
</tr>
<tr>
<td>Division of Mathematical Sciences</td>
<td>184</td>
</tr>
<tr>
<td>Mathematics</td>
<td>185</td>
</tr>
<tr>
<td>Microbiology</td>
<td>190</td>
</tr>
<tr>
<td>Military Science (Army ROTC)</td>
<td>192</td>
</tr>
<tr>
<td>Molecular Biology</td>
<td>193</td>
</tr>
<tr>
<td>Museum Studies</td>
<td>194</td>
</tr>
<tr>
<td>Music</td>
<td>194</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>202</td>
</tr>
<tr>
<td>Philosophies and Ethics of Politics, Law, and Economics</td>
<td>202</td>
</tr>
<tr>
<td>Philosophy</td>
<td>203</td>
</tr>
<tr>
<td>Physical Education Skills</td>
<td>205</td>
</tr>
<tr>
<td>Physics and Astronomy</td>
<td>205</td>
</tr>
<tr>
<td>Political Science</td>
<td>210</td>
</tr>
<tr>
<td>Psychology</td>
<td>214</td>
</tr>
<tr>
<td>Religion</td>
<td>220</td>
</tr>
<tr>
<td>Rhetoric</td>
<td>223</td>
</tr>
<tr>
<td>Rhetorics of Inquiry</td>
<td>224</td>
</tr>
<tr>
<td>Russian</td>
<td>225</td>
</tr>
<tr>
<td>Russian, East European, and Eurasian Studies</td>
<td>227</td>
</tr>
<tr>
<td>Science Education</td>
<td>229</td>
</tr>
<tr>
<td>Social Studies</td>
<td>232</td>
</tr>
<tr>
<td>Social Work</td>
<td>233</td>
</tr>
<tr>
<td>Sociology</td>
<td>238</td>
</tr>
<tr>
<td>Spanish and Portuguese</td>
<td>242</td>
</tr>
<tr>
<td>Speech Pathology and Audiology</td>
<td>248</td>
</tr>
<tr>
<td>Sport, Health, Leisure, and Physical Studies</td>
<td>253</td>
</tr>
<tr>
<td>Statistics and Actuarial Science</td>
<td>258</td>
</tr>
<tr>
<td>Theatre Arts</td>
<td>263</td>
</tr>
<tr>
<td>Third World Development Support</td>
<td>266</td>
</tr>
<tr>
<td>Transportation Studies</td>
<td>268</td>
</tr>
<tr>
<td>Unified Program</td>
<td>270</td>
</tr>
<tr>
<td>Urban and Regional Planning</td>
<td>270</td>
</tr>
<tr>
<td>Women’s Studies</td>
<td>273</td>
</tr>
</tbody>
</table>

Dean: Judith P. Akin
Associate dean for academic programs: James B. Lindberg
Associate dean for development and research: John D. Fix
Associate dean for faculty Raul Curto
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, humanities, natural sciences, 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 50 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 from each of the college’s three divisions: natural and mathematical sciences, the social sciences, and the humanities and arts. This breadth is achieved through the college’s General Education Program, which is 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.

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 College of Liberal Arts programs 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 I: 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 that entering students need 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 apply to entering freshmen who graduated from high school after 1985; transfer students with fewer than 24 semester hours of transferable credit who graduated from high school after 1985; and transfer students with 24 or more semester hours of transferable credit who graduated from high school in 1991 or after. The unit requirements are:

- 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); and
- 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); and
- two additional 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 Freshmen

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 General Education Program 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 must 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 passing grades.

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 a college participating in an articulation agreement with The University of Iowa are considered to have fulfilled the unit requirements if they have completed the requirements of the articulation agreement. Other transfer students may use college courses taken elsewhere to make up high school deficiencies. Courses must be completed with passing grades; they may not be taken P/N. Courses taken to remove deficiencies do not count toward General Education Program 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 also may 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 Program 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 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 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 definite promise of success. At the discretion of the admissions officer, such students may be admitted unconditionally, admitted on probation, 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 for college work, and provide evidence of specific competence for admission to a given curriculum.

Recruited Students

Some prospective students are recruited as part of the University’s Educational Opportunity Program or because of their exceptional achievement in athletics, fine arts, or other skills related to University programs, performing groups, or other areas of institutional priority. Recruited students who do not meet the standards for regular admission are admitted through the IowaLink Program, which provides affective and cognitive support to help these students make a successful transition to college.

Admission through IowaLink

Factors considered in determining admissibility through the IowaLink Program include, but are not limited to the following:

- analysis of the applicant’s high school transcript, with particular attention to course grading patterns and to whether the applicant’s choices are appropriate preparation for college-level study;
- standardized test scores, both aptitude and achievement;
- recommendations of teachers, counselors, and administrators;
- the applicant’s own written statement of educational goals and objectives.

In addition to a strong motivation to excel, the applicant must have an overall record showing reasonable evidence that with the use of available resources and other services, he or she could earn a degree in five to six years at The University of Iowa.

Students recruited by Men’s or Women’s Intercollegiate Athletics must meet the initial eligibility requirements for athletic scholarships set by the National Collegiate Athletic Association (NCAA) in order to be admitted through IowaLink. Students recruited by other units or departments must meet equivalent minimum standards.

Administration of IowaLink resides at the Undergraduate Academic Advising Center. IowaLink includes an academic year (fall and spring semesters). To successfully complete the IowaLink Program, students must meet the College of Liberal Arts standards for good standing or continued enrollment at the time of the May academic review.

Denial of Admission through IowaLink

Recruited students whose records do not meet the standards for the IowaLink Program are denied admission to the University. Although the director of admissions maintains close communication with the recruiting unit or department, he or she has the full authority and responsibility for final decisions on the admissibility of all recruited students.

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 attended. They 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 4.00-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.

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 consideration the period of suspension. Applicants granted admission under these circumstances are admitted on probation, and their admission is subject to cancellation.

Students Whose Native Language Is Not English

The University of Iowa has an English proficiency requirement to assure that a student whose native language is not English knows English well enough to study without being hindered by language problems, to understand lectures, and to participate successfully in class discussions. For that reason, an applicant whose native language is not English is required to submit scores on the Test of English as a Foreign Language (TOEFL) with the application 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 Cluebec), Africa (English-speaking), Australia, or New Zealand.

Foreign Applicants

REGULAR ADMISSION

Newly admitted students whose TOEFL scores are 600 or higher 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:

- are not required to take English as a Second Language courses; or
- are required to enroll in credit-bearing English as a Second Language courses; or
- are 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:
- are not required to take English as a Second Language courses; or
- are required to enroll in credit-bearing English as a Second Language courses; or
- are 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

A U.S. citizen or permanent resident whose native language is not English is required to submit scores on the TOEFL before registering for courses. Exceptions to this requirement are made in the cases of applicants whose ACT English subscore is 21 or above (SAT 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 Office of Admissions.

English Proficiency Evaluations

On-campus proficiency evaluations are conducted by the Department of Linguistics. If such evaluation warrants, 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. 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 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 since 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.

Liberal Arts Office of Academic Programs

The Liberal Arts Office of Academic Programs is an integral part of the Office of the Dean. It serves students who wish to declare or change majors, file the second-grade-only option, or request the 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 General Education Program 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.

Four-Year Graduation Plan

Students eligible to participate in The University of Iowa four-year graduation plan can choose from almost all of the programs and degrees offered by the College of Liberal Arts. Participating students sign an agreement that lists general requirements for continuation in the four-year graduation plan. Specific requirements for each available major program are found in the departmental sections of the Catalog. The “checkpoints” listed for each major represent only the minimum requirements, and many students will want to supplement the minimum work with additional course work in the major. Failure to meet a checkpoint does not mean that a student cannot graduate in four years, but it does void the guarantees of the four-year graduation plan agreement.

Students who take noncredit course work must take additional credit-bearing courses to earn the semester hours required for the degree and to satisfy the semester-hour requirement stated in the checkpoints.

Students who intend to study abroad or to complete an internship as part of their degree must plan very carefully in order to graduate in four years. In some cases, students may find that the four-year graduation plan is not a feasible option.

The College of Liberal Arts provides remedies if graduation in four years would be delayed by the unavailability of a course. Students often wish to earn two majors, or two degrees, or to add minors or certificates to their programs, and many find it possible to make graduation plans that allow them to achieve these objectives. However, the remedies of the four-year graduation plan are provided to students only for one major.

Failure to meet the academic standards of the College of Liberal Arts voids the guarantees of the agreement (see “Academic standards” in this section of the Catalog.)

Additional information on the four-year graduation plan is available from the students’ advisers or from the Liberal Arts Office of Academic Programs. Notification forms to be used when a needed course is unavailable are available from departments, the Undergraduate Academic Advising Center, and the Liberal Arts Office of Academic Programs.
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 Program requirements and special honors sections are offered in some courses approved for General Education. 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.

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 award 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 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. For more information see “Honors Program” in the Learning at Iowa section of the Catalog or contact the Honors Program at Shambaugh House Honors Center.

Degrees, Certificates, and Minors

Degrees and Major Fields

Students graduating from the College of Liberal Arts may 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.

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.*
Ancient civilization– B.A.
Anthropology– B.A.
American studies– B.A.
Art–B.A., B.F.A.*
Architecture– B.A., B.S.
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.
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.
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.
Sociology– B.A., B.S.
Spanish– B.A.
Speech and hearing science– B.A.
Sport, Health, Leisure, and Physical Studies– B.S.
Statistics– B.S.
Theatre arts– B.A.

*Students who wish to major in actuarial science, communication studies, elementary education, exercise science, global studies, interdepartmental studies, journalism and mass communication, or social work, to earn a B.S. degree in computer science or psychology, or to earn a B.F.A. degree in art or dance 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, submission of a plan of study, 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 must 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. The grade-point average required for admission and continuance will rise to 2.70 in Fall 1997.

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.

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); Asian studies (B.A. or minor); Asian-American world studies (certificate or option in B.A. in African American studies); African American world studies (B.A. or minor); international business (certificate); Latin American studies (minor or certificate); literature, science, and the arts (B.A.); and women’s studies (minor).

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

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.

Each certificate program draws on courses from at least three departments, and most draw on courses offered by other colleges. Certificates require from 18 to 36 semester hours of prescribed course work. Specific requirements are listed in the departmental sections of the Catalog.

A grade-point average of at least 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 General Education Program 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: African 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, linguistics, mathematics, microbiology, music, philosophy, physics, political science, Portuguese, psychology, religion, Russian, social work, sociology, Spanish, sport, health, leisure, and physical studies, statistics, theatre arts, and women’s studies.

Students in the College of Liberal Arts also may earn minors offered by the College of Education and by the College of Business Administration. The general requirements for minors are described below, under “Minors.” Specific requirements are listed 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 a college of medicine or dentistry, students must meet certain requirements. Before enrolling in the medical or dental college, students must have:

- completed the General Education Program;
- 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 a 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 General Education requirements and the requirements for a major in each college. To qualify for both degrees in the combined degree program, candidates must complete an overall total of 150 semester hours of credit, including at least 30 semester hours of courses offered by the College of Business Administration and at least 30 semester hours of courses offered by the College of Liberal Arts.

Engineering and Liberal Arts

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.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 can 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 and the College of Liberal Arts. Interested students should contact the assistant to the dean 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 Program and the requirements for the major 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.

**Medicine and Word 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 baccalaureate program in medical technology or nuclear medicine technology. 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.

**Nursing and Liberal Arts**

Students may earn two University of Iowa baccalaureate degrees in a combined program in the Colleges of Nursing and Liberal Arts. Successful candidates are awarded a B.S.N (Bachelor of Science in Nursing) by the College of Nursing 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 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 Nursing. Students who enter the combined degree program are assigned two advisers, one for prenursing/nursing and the other in their major department in the College of Liberal Arts.

Although students begin their academic program in the College of Liberal Arts, they must be admitted to the College of Nursing’s baccalaureate program in order to receive both degrees. Students apply for admission to the College of Nursing during their last semester of prerequisite course work. Students in the combined program are required to complete the General Education Program and requirements for the major in the College of Liberal Arts as well as requirements for the major in Nursing.

It is crucial that students enroll in the proper nursing prerequisite courses early to expedite the completion of their programs. Long-range planning with an adviser helps ensure timely completion. 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 Nursing and at least 30 semester hours of courses offered by the College of Liberal Arts.

**Two Bachelor's 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. may not be awarded simultaneously with another degree.

**Returning for an Additional 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 apply for admission to earn an additional bachelor’s degree. Students with a bachelor’s degree from another college or university also may apply for admission to The University of Iowa to earn an additional degree. The department in which the student wishes to study will review the student’s application and supporting documents and recommend an admission decision. Admitted students must complete at least 30 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 degrees).

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

(Students with a degree from The University of Iowa may return and complete a second major, rather than an additional degree, if the program offers the same degree as that which the student previously earned. See “Returning for a Second Major” under “Requirements for the Major” in this section of the Catalog.)

**Requirements for Graduation**

Requirements for graduation (B.A., B.S., B.F.A., B.L.S., and B.M. degrees) include residence in the College of Liberal Arts, total hours earned, satisfactory grade-point average, completion of a major, and completion of the General Education Program requirements.

**Classification of Students**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Semester hours earned</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>0-29</td>
<td>A1</td>
</tr>
<tr>
<td>Sophomore</td>
<td>30-59</td>
<td>A2</td>
</tr>
<tr>
<td>Junior</td>
<td>60-89</td>
<td>A3</td>
</tr>
<tr>
<td>Senior</td>
<td>90 or more</td>
<td>A4</td>
</tr>
<tr>
<td>Special (nondegree) student</td>
<td></td>
<td>A9</td>
</tr>
</tbody>
</table>

**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.

**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.

**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. Armed Forces Institute correspondence courses may be accepted for credit under appropriate circumstances.

**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 General Education Program requirements or requirements in the major or minor. Credit awarded through the Foreign Language Incentive Program or the Mathematics 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 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 (APP) or the College-Level Examination Program (CLEP). See “Advanced Placement Program” and “College-Level Examination Program.”

Credit by Examination in the Major

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 majors 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 advanced placement is warranted. Credit awarded through APP may be applied to General Education Program requirements, to requirements in the major or minor, or as elective credit.

Specific credit policies and further information are 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. Credit earned for achievement on a general examination may be applied toward General Education Program requirements or as elective credit. 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 are available from the University’s Evaluation and Examination Service.

Foreign Language Incentive Program

The Foreign Language Incentive Program enables entering Liberal Arts 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 course work for which credit has been received.

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

For more information on eligibility and restrictions, consult the Office of Academic Programs.

Mathematics Incentive Program

The Mathematics Incentive Program enables entering Liberal Arts students to earn extra college credit. Entering students who obtain a score of 15 or higher on the MPT Level 3 exam (given during orientation and monthly by at the Evaluation and Examination Service) who enroll in an MIP-eligible course may earn credit for the prerequisite course if they earn a grade of B or higher. The credit is ungraded but counts toward the hours required for graduation. Incentive credit is not granted for college course work for which credit has been received.

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

For more information on eligibility and restrictions, consult the Office of Academic Programs.

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.

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. A., and 40 toward the B.A. in interdepartmental studies. This includes both University of Iowa and transfer course work.

A maximum of 16 semester hours of vocational-technical credit is accepted in transfer.
A student's degree evaluation gives the correct work attempted in all official purposes (e.g., full-time and half-time status, maximum schedule, 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
Departments and programs sometimes identify courses as part of particular learning sequences that require a progression from one course to the next. Regression occurs when a student takes a course that is earlier in the sequence than a course already taken and passed. Regression is identified at the time of final graduation analysis, and hours of regression do not count toward the total number of hours required for graduation. Current regression sequences are listed in the Schedule of Courses.

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 grade-point average of at least 2.00 (C average) in all college work attempted, all work undertaken at The University of Iowa, and all work attempted in the major field, including 2.00 in all University of Iowa major work.

Candidates for the B.L.S. degree must earn a work applied toward the degree, all course work completed after admission to the program, and all upper-level course work.

Requirements for the Major

Declaring or Changing Majors
Liberal arts students who are advised at the Undergraduate Academic Advising Center can declare or change majors there. All students in the College of Liberal Arts can declare or change majors in the Office of Academic Programs.

Students who wish to major in actuarial science, communication studies, elementary education, exercise science, global studies, interdepartmental studies, journalism and mass communication, or social work, or who wish to earn the B.S. degree in computer science or psychology or the B.F.A. degree in art or dance 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, preparation of a plan of study, 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 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.

Guidelines
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 and correspondence 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 applies to both University of Iowa and transfer course work. Courses required for the major in cognate or related areas may be taken pass/nonpass, if available, at the discretion of the major department. S (satisfactory) grades may be earned in the major.

A maximum of 16 semester hours of credit by examination may be awarded in the major. See “Credit by Examination in the Major or Minor” in this section of the Catalog.

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.

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 and declare the appropriate major on the application.

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

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. They may apply for admission to complete an additional degree (see “Returning for an Additional Degree”).

Minors
Liberal Arts Minors
Students graduating from the College of Liberal Arts may earn a minor or minors in any
minor-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. Course work through University of Iowa Guided Correspondence Study may be acceptable. Students should check with the 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 department or program.

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 may be used to satisfy General Education Program requirements.

Course work applied toward the minor 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.

Restrictions
Course work applied toward a minor may not be used to satisfy the requirements for a major, 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: actuarial science; biochemistry; elementary education; exercise science; health occupations education; interdisciplinary studies; liberal studies; literature, science, and the arts; Russian, East European, and Eurasian studies; social studies; and speech pathology and audiology. A minor in science education is offered through the College of Education (see “Minors in Education”).

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, 22 S:39, 22S: 102, 22S:120, 31:142, or 7P:143) 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:47 Introduction to Law 3 s.h.
- 6F:48 Introduction to Management 3 s.h.
- 6K:70 Computer Analysis 3 s.h.
- 6F:100 Introductory Financial Management (or 57:14) 3 s.h.
- 6M:100 Introduction to Marketing 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.

Liberal Arts Minors for Students in Business, 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 collegiate sections of the Catalog.)

General Education Program
All students earning B.A., B.S., B. F.A., B. L. S., or B.M. degrees must complete the College of Liberal Arts General Education Program. The program requires courses in Rhetoric, Foreign Language, Interpretation of Literature, Historical Perspectives, Humanities, Natural Sciences, Quantitative or Formal Reasoning, and Social Sciences as well as Distributed General Education hours, as shown:

- Rhetoric: 1-2 courses, 4-8 semester hours
- Foreign language: fourth-semester competency for all degrees
- Interpretation of literature: 1 course (8G: 1 ), 3 semester hours
- Historical perspectives: 1 course, 3 semester hours minimum
- Humanities: 1 course, 3 semester hours minimum
- Natural sciences: 2 courses, 1 with lab, 7 semester hours minimum
- Quantitative or formal reasoning 1 course, 3 semester hours minimum
- Social sciences: 1 course, 3 semester hours minimum
- Distributed general education: 6 semester hours, with a minimum of 3 semester hours chosen from each of two of these areas: cultural diversity, fine arts, foreign civilization and culture, historical perspectives, humanities, physical education, social sciences.

The General Education Program was revised and implemented for students entering fall semester 1996. Students who first enrolled in the College of Liberal Arts before fall semester 1996 may choose to complete the revised general education program or the requirements in effect before fall 1996.

General Education Program Areas
Rhetoric
Rhetoric course work develops skills in reading, writing, speaking, and listening. Students learn to read with understanding and to use writing and speaking to discover, explain, question, and
the rest of a student’s study in the College of Liberal Arts, students must register for their assigned rhetoric course at their first or second registration, as required, and continue to enroll in rhetoric 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 is held for a University of Iowa rhetoric class, and if so, which one(s).

Students required to enroll in English as a Second Language (ESL) classes as a result of their English proficiency evaluation must complete all ESL classes before registration in any rhetoric class. Required ESL courses are prerequisites to rhetoric courses.

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 Schedule of Courses.

Cultural Diversity
Courses approved in this area provide students with knowledge, critical understanding, and appreciation of diverse patterns of behavior and values that may be different from their own. Courses focus on one or more nondominant, non-majority cultures or peoples of the United States. Some courses include comparative study with cultures outside the United States, but the primary focus is on cultures of the United States. Students may use 3 semester hours of course work from this area in partial satisfaction of the Distributed General Education requirement. Transfer work may be approved in this area.

Fine Arts
Courses approved in this area provide students with knowledge of the history, theory, and appreciation of various disciplines in the creative arts, and experiences in studio, performance, and production. Students may use 3 semester hours of course work from this area in partial satisfaction of the Distributed General Education requirement. APP and transfer credit may be approved in this area.

Foreign Language
Study of a foreign language provides students opportunities to free themselves from the limitations of their own experience and to enter a wholly new environment by altering the most fundamental means of perception and expression, language itself. This experience — however limited in time and scope — provides new perspectives by which to view another culture and students’ own cultures.

The General Education Program requires that students:
- complete the fourth-year level of a foreign language in high school; or
- complete the last course in the designated course sequence of an approved foreign language at The University of Iowa, or the equivalent course at another college or university, or the equivalent during study abroad; or
- pass an achievement test measuring proficiency equivalent to that usually attained after four semesters of college-level language study.

B.L.S. degree candidates who enrolled at The University of Iowa before fall semester 1990 and who graduate with a B.L.S. degree by August 1997 are exempt from this requirement.

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

FOREIGN LANGUAGES OFFERED AT IOWA
Students proficient in French, Latin, or Spanish should take one of the University of Iowa placement examinations regularly administered to entering students during orientation programs and at the Evaluation and Examination Service on a monthly basis. Academic credit is not awarded for successful completion of these examinations. Liberal Arts students proficient in more than one language may take the placement exam in each language. Students who have been enrolled in a University of Iowa course in a particular language past the deadline for adding courses may not take the placement exam in that language. Students may take a placement exam in a particular language only once. Students may repeat an exam only if they have had a significant language learning experience outside the classroom since they first took the exam. Students seeking exception to these rules should consult with the department for permission to take the exemption test.

Proficiency examinations in American Sign Language, Chinese, ancient Greek, Hindi, Italian, Japanese, 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 are 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 languages, however. 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.

Students Whose Native Language Is Not English
Students may use English to satisfy the foreign language requirement if they 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 by a score of 600 or above on the Test of English as a Foreign Language (TOEFL), or successful completion of required English as a second language courses as determined by an English proficiency evaluation conducted by the Linguistics Department; or validation of English proficiency by the coordinator of English as a Second Language.

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.

Historical Perspectives
Courses approved in this area help students develop the capacity to comprehend chronological sequence and to appreciate the significance of change and continuity through time and in various social contexts. These courses expand students’ analytical abilities and acquaint them with the tools employed in evaluating evidence and developing generalizations and interpretations. Each student must complete at least 3 semester hours of course work in this area. CLEP or APP credit and transfer course work may be applied to the requirement. Students also may choose to take a second 3 semester hours in this area in partial satisfaction of the Distributed General Education requirement.

Humanities
Courses approved in this area focus on the study of the artistic forms, values, and patterns of meaning that the Humanities encompasses in and imposes on the self and the world outside the self. Each student must complete at least 3 semester hours of course work in this area. CLEP or APP credit and transfer course work may be applied to the requirement. Students also may choose to take a second 3 semester hours in this area in partial satisfaction of the Distributed General Education requirement.
Interpretation of Literature
The skills students develop in Rhetoric classes (see above) are expanded in 8G:1 Interpretation of Literature. Working in small classes, students focus on the major genres of literature (short and long fiction, poetry, drama) and increase their abilities to read and analyze a variety of texts. Students are required to complete the course 8G:1 Interpretation of Literature, or to satisfy this requirement with transfer work, APP credit, or the CLEP subject exam in Analysis and Interpretation of Literature (including the essay portion of the exam). Students majoring in English may satisfy the requirement by taking a course approved for General Education in Humanities in place of 8G:1. Students may not enroll in 8G:1 until they have completed all assigned Rhetoric course work.

Natural Sciences
Courses approved in this area help students to understand the scope and major concepts of a scientific discipline. In these courses students explore the attitudes and practices of scientific investigators: logic, precision, experimentation, tentativeness, and objectivity. In courses with a laboratory component students experience the procedures of the scientific method. Each student completes at least 7 semester hours minimum, including at least one course with a lab component. Students who have CLEP credit for natural sciences must still complete a course with a lab component. Students with APP science credit have their natural sciences requirement indicated on their degree evaluation. Transfer course work may be approved in this area.

Physical Education
Courses approved in this area help students acquire knowledge and skills that will promote good health and life-long pleasure from physical activities. Students may use 3 semester hours of course work from this area in partial satisfaction of the Distributed General Education requirement. Transfer work may be approved in this area.

Quantitative or Formal Reasoning
Courses approved in this area help develop the analytical skills of students. Courses focus on the presentation and evaluation of evidence and argument, the appreciation of use and misuse of data and the organization of information in quantitative or other formal systems. Each student must complete at least 3 semester hours of course work in this area. Transfer course work or APP credit or the CLEP subject exam in calculus may be used to satisfy this requirement. Students also may satisfy this requirement by completing a course that lists an approved course as a prerequisite.

Because the skills provided by these courses are important in all disciplines, and because many majors require these courses as foundations for other work, students should satisfy this requirement by the end of their second year in residence or during their first 60 semester hours of study at The University of Iowa.

Social Sciences
Courses approved in this area focus on human behavior and the institutions and social systems that shape and are shaped by that behavior. Courses provide an overview of social science disciplines, their theories and methods. Each student must complete at least 3 semester hours of course work in this area. CLEP or APP credit and transfer course work may be applied to the requirement. Students also may choose to take a second 3 semester hours in this area in partial satisfaction of the Distributed General Education requirement.

Additional Information
The Unified Program
In the Unified Program (UP) a small group of students takes General Education Program courses together. Students apply for the program when they are admitted to The University of Iowa. Unified Program courses satisfy all the College of Liberal Arts General Education Program requirements except the foreign language requirement. Each UP course is equivalent to a specific course approved for General Education. Students in the UP may leave the program at any time and complete the General Education Program requirements in other ways, but students can enter the program only during their first semester, and only during the fall. (See Unified Program in the departmental section of the Catalog. For a list of currently offered courses, see “Unified Program” in the Schedule of Courses.)

The Honors Program
Students who are admitted as honors students or who join the University Honors Program are eligible to satisfy some General Education Program requirements in special Honors sections or Honors seminars. (See “Honors Program” earlier in this section of the Catalog.)

Students with Disabilities
Students with documented learning disabilities or physical disabilities may need accommodation in order to complete one or more of the requirements of the General Education Program. Accommodations are arranged by the Office of Student Disability Services in consultation with departments and the Office of Academic Programs. For more information, contact the Office of Student Disability Services or the Office of Academic Programs.

General Education and Transfer Courses
General Education Program requirements can be satisfied with course work completed at other institutions. Transfer course work is evaluated by Admissions and courses accepted for satisfaction of General Education Program requirements are shown on the degree evaluation.

Students with A.A. Degrees and General Education
Students with A.A. degrees from colleges participating in articulation agreements with The University of Iowa are considered to have satisfied all requirements of the General Education Program, except foreign language, if the program of study for which the degree was awarded is covered by the articulation agreement and includes the following:
a minimum of 60 semester hours (90 quarter hours) of credit acceptable toward graduation; mathematics courses comparable to 22M:1-2 Basic Algebra I-II and 22M:3 Basic Geometry are not accepted toward graduation; completion of an agreed-upon group of courses; 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 degree, the excess credit is used in computing the grade-point average and may be used to satisfy course requirements, but the excess credit does not count toward the bachelor’s degree.

Representatives from the cooperating institutions and the Regents universities meet annually to review the provisions of the articulation agreements.

Pass/Nonpass
Courses taken pass/nonpass may not be used to satisfy requirements of the General Education Program. Only when used for elective credit may courses approved for General Education be taken pass/nonpass.

Courses from the Major Department
Students may use approved courses from their major department to satisfy General Education Program requirements.

Limit on Courses from One Department
Students may use no more than three approved courses from any one department to satisfy General Education Program requirements. Courses taken to satisfy the foreign language requirement are excluded from this rule.

Repeatable Courses
Some courses approved for General Education may be repeated for credit; but only 3 semester hours of General Education Program credit may come from repeatable courses.

Courses Approved in More Than One Area
Many courses are approved in more than one General Education Program area. A student may apply a single course to satisfy a General Education Program requirement in any area for
which it is approved, but may use a single course only once.

Course Lists

Cultural Diversity
000:110 Introduction to Lesbian, Gay, Bisexual Studies
1 H2 Art of Africa, Oceania, and Pre-Columbian America
1H: 104 American Indian Art
1H:109/129:109 The Arts of the African Diaspora
7F: 154 Education, Race, and Ethnicity
7F: 180 Human Relations for the Classroom Teacher
7C:133/7/133 Culturally Different in Diverse Settings
8G: 11 Literature and Sexualities
8G: 13 Literatures of Latinos/as in the African Diaspora
8G: 11 Literature and Sexualities
9:147/36F: 105 French Cinema
9:113 French Civilization
8G:14/129:8/141:14 Literatures of the African Peoples
8G:14/129:8/141:14 Literatures of the African Peoples
8G:137:124 Major Modern Dance III 1-3 s.h.
8G:137:113 Major Ballet II 1-2 s.h.
8G:137:106 Dance Performance 0-1 s.h.
8G:137:113 Major Ballet II 1-2 s.h.
8G:137:114 Major Modern Dance II 1-3 s.h.
8G:137:123 Major Ballet III 1-3 s.h.
8G:137:124 Major Modern Dance III 1-3 s.h.
25:104 Music of Latin America and the Caribbean
25:144 History of Music I 3 s.h.
25:146 History of Music II 3 s.h.
25:159 Survey of Music Masterpieces I 3-4 s.h.
25:160 Survey of Music Masterpieces II 3-4 s.h.
33:161 The Arts in Performance 3 s.h.
49:1 Art of the Theatre 3 s.h.
49:2 Theatre and Society 3 s.h.
49:20 Basic Acting 3 s.h.
49:21 Basic Acting II 3 s.h.
49:62 Basic Playwriting 3 s.h.
49:94 Oral Interpretation of Literature 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.
49:118 American Women Playwrights: 19th and 20th Century 3 s.h.
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 Jazz 2 s.h.
137:23 Low Intermediate Ballet 2 s.h.
137:24 Low Intermediate Modern Dance 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 1-2 s.h.
137:114 Major Modern Dance II 1-3 s.h.
137:123 Major Ballet III 1-3 s.h.
137:124 Major Modern Dance III 1-3 s.h.
137:146 History of Music II 3 s.h.
137:147 History of Music III 3 s.h.
137:148 History of Music IV 3 s.h.
137:149 History of Music V 3 s.h.
137:150 History of Music VI 3 s.h.
227:55 Introduction to African Diaspora Bisexual Studies
1H:16/39:16 Asian Art and Culture 3 s.h.
1H:16/39:16 Asian Art and Culture 3 s.h.
1H:16/39:16 Asian Art and Culture 3 s.h.
1H:20/141:30 Introduction to African Art
1H:60 Ceramics I
1H:60 Ceramics I
1H:2 Art of Africa, Oceania, and Pre-Columbian America
1H:4 Majorpieces: Art and Cultural Paradigms
1H:5 Western Art and Culture Before 1400
1H:6 Western Art and Culture After 1400
1H:10 Freshman and Sophomore Tutorial: Introduction to the History of Art
1H:16/39:16 Asian Art and Culture 3 s.h.
1H:20/141:30 Introduction to African Art
1H:66 Introduction to American Art
1N: 15 Undergraduate Sculpture I
8/184/18/141:14 Contemporary Theatre and Drama
8/1 Creative Writing Studio Workshop
14: 108/49: 180 Greek Drama in Translation
25:13 Masterpieces of Music
25:14 Masterpieces of Music
25:59 Performance Instruction for Non-Majors
25:82 Croup Piano I Non-Music
25:103 World Music I: Africa, Asia, Europe
16E:107 The Hellenistic World and Rome 3 s.h.
16E:110 Medieval Civilization 3 s.h.
16E:113 Economic and Social History of Medieval Europe 3 s.h.
16E:117 History of the Medieval Church 3 s.h.
16E:119/131:119 Women, Marriage, and Family in Medieval Europe 3 s.h.
16E:122 European Religious Reformation, 1520-1750 3 s.h.
16E: 125/131:181 Society and Gender in Europe 1200-1789 3 s.h.
16E:126 Early Modern France and the French Revolution, 1500-1800 3 s.h.
16E:127 European History in Text and Film, 1500-1845 3 s.h.
16E:146 France from 1815 to the Present 3 s.h.
16E:148/131:182 Society and Gender in Europe 1750-present 3 s.h.
16E:156 Germany since 1914: Weimar, Hitler, and After 3 s.h.
16E:176 Imperial Russia: 1598-1801 3 s.h.
16E:177 Imperial Russia: 1801-1917 3 s.h.
16E:178 Soviet Union 1917-1953 3 s.h.
16E:179 Soviet Union 1953-1991 3 s.h.
16E:111 Colonial Latin America 3 s.h.
16E:112 Introduction to Modern Latin America 3 s.h.
16E:113 The Mexican Revolution 3 s.h.
16E:194/39:134 Imperialism and Modern India 3 s.h.
16E:196/39:154 Modern China: 1800 to Present 3 s.h.
19:157/44:157 Third World Development Support 3 s.h.
25:103 World Music I: Africa, Asia, Europe 3 s.h.
30:141 Russian/Post-Soviet Politics 3 s.h.
30:144 Latin American Government 3 s.h.
30:145 Major States of Latin America 3 s.h.
30:146/44:161/146 African Development 3 s.h.
30:148 141:148 The Politics of southern Africa 3 s.h.
32:4/39:64 Living Religions of the Far East 3 s.h.
32:8/39:18 Asian Humanities: India 3 s.h.
32:9/39:19 Asian Humanities: China 3 s.h.
32:176/39: 161 Chinese Religions 3 s.h.
35:20 Contemporary Latin American Narrative 3 s.h.
38:20 Contemporary Brazilian Narrative 3 s.h.
38:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
39:20 Asian Humanities: Japan 3 s.h.
39:125/13:125 Japanese Society and culture 3 s.h.
41:185 Introduction to Russian Culture 3 s.h.
41:186 Russia Today 3 s.h.
41: S: 100 Introduction to the Commonwealth of Independent States 3 s.h.
113:118/129:1 15 Social Anthropology of the Caribbean 3 s.h.
113:127 Ethnology of Oceania 3 s.h.
113:131 Latin American Economy and Society 3 s.h.

Foreign Language
American Sign Language: 000:141, 142, 143, and 144
Chinese: 39:8-9 or 39:100-101
Historical Perspectives

1 H: 5 Western Art and Culture Before 1400
   3 s.h.
1 H: 6 Western Art and Culture After 1400
   3 s.h.
H: 16/39: 16 Asian Art and Culture
   3 s.h.
14: 30 Creek Civilization
   3 s.h.
14:103 Women in Antiquity
   3 s.h.
16: 1 The European Experience I: The
   Ancient and Medieval Worlds
   3-4 s.h.
16: 2 The European Experience II: The
   Early Modern World
   3-4 s.h.
16: 3 The European Experience III: The
   Modern World
   3-4 s.h.
16: 39: 55 Civilizations of Asia:
   Premodern China and Japan
   3 s.h.
16: 39: 56 Civilizations of Asia:
   Modern China and Japan
   3 s.h.
16: 39: 57 Civilizations of Asia: South
   Asia
   3-4 s.h.
16: 10 Issues in Human History:
   Foundations of Science
   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: Gender
   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: 20 Issues in Human History:
   Medieval Society
   3 s.h.
16: 22 Issues in Human History:
   Nature and Society in Historical Perspective
   3 s.h.
16: 23 Issues in Human History:
   European Politics and Society
   3 s.h.
16: 30 Science and Medicine in World
   Perspective
   3-4 s.h.
19: 91 Cultural and Historical
   Foundations of Civilization
   3 s.h.
20: 15 Educational Thought and Society
   3 s.h.
20: 16 The Concept of the City: Rome
   3 s.h.
25: 144 History of Music I
   3 s.h.
25: 146 History of Music II
   3 s.h.
26: 33 Philosophy and Human Nature
   3 s.h.
26: 34 Philosophy and the Just Society
   3 s.h.
32: 1 Judeo-Christian Tradition
   3 s.h.
32: 4/39: 64 Living Religions of the East
   3 s.h.
32: 55 The History of Christianity to
   1500
   3 s.h.
32: 112/39: 112 Medieval and Reformation
   Religious Thought
   3 s.h.
49: 2 Theatre and Society
   3 s.h.
113: 12 Introduction to Prehistory
   3 s.h.

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:
16A:61 American History 1892-1877
   3 s.h.
16A:62 American History 1877-Present
   3 s.h.

Humanities

1 H: 1 Concepts and Context: Art and
   culture
   3 s.h.
1 H: 2 Art of Africa, Oceania, and
   Pre-Columbian America
   3 s.h.
1 H: 4 Masterpieces: Art and Cultural
   Paradigms
   3 s.h.
1 H: 10 Freshman and Sophomore
   Tutorial: Introduction to the History of
   Art
   4 s.h.
H: 66 Introduction to American Art
   7/5:12/24:102/28:70/97:1
   15/
113:103 Introduction to Museology
   3 s.h.
8: 13/14: 13 The Classical Views
   3 s.h.
8: 40/48: 40 Major Texts in World
   Literature
   3 s.h.
8: 41/48: 41 Major Texts of World
   Literature
   3 s.h.
8: 13/14: 13 The Classical Views
   3 s.h.
8: 40/48: 40 Major Texts in World
   Literature
   3 s.h.
8: 41/48: 41 Major Texts of World
   Literature
   3 s.h.
8: 115/112 Classical Mythology
   3 s.h.
8: 184/49: 114 Contemporary Theatre
   and Drama
   3 s.h.
8G: 2 Biblical and Classical Literature
   3 s.h.
8G: 3 Medieval and Renaissance
   Literature
   3 s.h.
8G: 4 Epic and Tragic Literature
   3 s.h.
8G: 5 Comedy and Society
   3 s.h.
8G: 6 Narrative Literature
   3 s.h.
8G: 7 Lyric Poetry
   3 s.h.
8G: 8 Literature of the Theater
   3 s.h.
8G: 9 American Lives
   3 s.h.
8G: 11 Literature and Sexualities
   3 s.h.
8G: 12 Comic and Tragic Literature
   3 s.h.
8G: 13 Literature of Latin/as in the
   USA
   3 s.h.
8G: 14/129:141/14: 1 Literatures of the
   African Peoples
   3 s.h.
8G: 15 Women and Literature
   3 s.h.
8W: 1 Creative Writing Studio Workshop
   3 s.h.
10: 131 Classical Rhetoric and Greek
culture
   3 s.h.
13: 118 The Third Reich and Literature
   3 s.h.
14: 103 Women in Antiquity
   3 s.h.
14: 107 Ancient Views of Justice
   3 s.h.
14: 108/49: 180 Greek Drama in
   Translation
   3 s.h.
20: 113/12: 164 Religion and the Occult
   in Antiquity
   3 s.h.
25: 13 Masterpieces of Music
   3-4 s.h.
25: 14 Masterpieces of Music
   3-4 s.h.
25: 59 Performance Instruction for
   Non-Majors
   1 s.h.
25: 82 Group Piano I Non-Music
   1 s.h.
25: 103 World Music I: Africa, Asia,
   Europe
   3 s.h.
25: 104 World Music of Latin America
   and the Caribbean
   3 s.h.
25: 159 Survey of Music Masterpieces
   I
   3-4 s.h.
25: 160 Survey of Music Masterpieces
   II
   3-4 s.h.
26: 61 Introduction to Philosophy
   3 s.h.
26: 102 Introduction to Ethics
   3 s.h.
28: 72 Leisure and the Liberal Arts
   3 s.h.
30: 30 Introduction to Political Thought
   and Political Action
   3 s.h.
32: 2 Religion and Society
   3 s.h.
32: 3 Quest for Human Destiny
   3 s.h.
32: 8/59: 18 Asian Humanities: India
   3 s.h.
32: 8/59: 19 Asian Humanities: China
   3 s.h.
32: 10 Introduction to Religious Studies
   3 s.h.
32: 15 New Testament Survey
   3 s.h.
32: 51 Religious Thinkers of the West
   3 s.h.
32: 65 Power and Justice in the Good
   Life
   3 s.h.
32: 111/131/111 Religion and Women
   3 s.h.
33: 50 Making Choices: Interdisciplinary
   Perspectives
   3 s.h.
33: 121 The Good Society
   2-4 s.h.
33: 154 Human Nature and the Impact
   of Science
   2-4 s.h.
33: 161 The Arts in Performance
   2-4 s.h.
35: 20 Contemporary Latin American
   Narrative
   3 s.h.
36F: 2 Survey of Film
   3 s.h.
36F: 21 European Film History
   3 s.h.
38: 20 Contemporary Brazilian Narrative
   3 s.h.
39: 20 Asian Humanities: Japan
   3 s.h.
39: 50/48: 50 Non-Western Literary
   Traditions
   3 s.h.
41: 151 Russian Literature in Translation
   1800-1860
   3 s.h.
41: 152 Russian Literature in Translation
   1860-1917
   3 s.h.
45: 1 American Values
   3 s.h.
45: 30/129:61 Introduction to African
   American Culture
   3 s.h.
49: 1 Art of the Theatre
   3 s.h.
49: 20 Basic Acting
   3 s.h.
49: 21 Basic Acting II
   3 s.h.
49: 62 Basic Playwriting
   3 s.h.
49: 94 Oral Interpretation of Literature
   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: 118 American Women Playwrights:
   19th and 20th Century
   3 s.h.
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: 32 Low Intermediate Jazz
   2 s.h.
137: 33 Low Intermediate Ballet
   2 s.h.
137: 24 Low Intermediate Modern Dance
   2 s.h.
137: 33 Intensive Training for the Male
   Dancer
   2 s.h.
137: 30 Dance and Society
   3 s.h.
143: 50 Honors Seminar in Humanities
   3 s.h.
Interpretation of Literature

8G:1 The Interpretation of Literature 3 s.h.

Natural Sciences

2:1  Introduction to Botany (Lab) 4 s.h.
2:2  Introductory Animal Biology (Lab) 4 s.h.
2:10 Principles of Biology I (Lab) 4 s.h.
2:11 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.
2:91 Genetics and Evolution 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 Directions in Modern Physics (Lab) 4 s.h.
4:14 Principles of Chemistry I 3 s.h.
4:16 Principles of Chemistry II (Lab) 2 s.h.
12:3 Earth History and Resources (Lab) 4 s.h.
12:4 Evolution and the History of Life (Lab) 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) 3-4 s.h.
27:53 Human Anatomy 3 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 (Lab) 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) 3 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 Natural Sciences 3 s.h.

Physical Education

28S:1 Physical Education Skills 1 s.h.
28S:2 Physical Education Skills 1 s.h.
28S:S Fitness and Wellness for Life 2 s.h.

Quantitative or Formal Reasoning

7P:25/22S:25 Elementary Statistics and Inference 3 s.h.
22C:5 Problem solving and Computing 3 s.h.
22C:16 Introduction to Programming 4 s.h.
22M:9 Elementary Functions 3-4 s.h.
22M: 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:21 Calculus and Modeling 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 4 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.

Social Sciences

6E:1 Principles of Macroeconomics 3-4 s.h.
6E:2 Principles of Macroeconomics 3-4 s.h.
6E:7 Contemporary Economic Problems and Policy 3 s.h.
7F:99 Politics of Education 3 s.h.
19:90 Social Scientific Foundations of Communication 3 s.h.
28:70 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.
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.
30:140 Government and Politics of Western Europe 3 s.h.
30:146/141:146 African Development 3 s.h.
31:1 Elementary Psychology 3 s.h.
31:3 General Psychology 3 s.h.
31:3 General Psychology (only one of 31:1 or 31:3 maybe used) 3 s.h.
31:13 Introduction to Clinical Psychology 3 s.h.
31:14 Introduction to Child Development 3 s.h.
31:16 Introduction to Cognitive Psychology 3 s.h.
31:17 Introduction to Comparative Psychology 3 s.h.
34:1 Introduction to Sociology: Principles 3-4 s.h.
34:2 Social Problems 3-4 s.h.
36C:60 Communication Theory in Everyday Life 3 s.h.
36M:25 Mass Media and Mass Society 3 s.h.
44:1 Introduction to Human Geography 4 s.h.
44:11 Introduction to Social Geography 3 s.h.
44:19 Contemporary Environmental Issues 3 s.h.
44:30 The Global Economy 3 s.h.
47:1 Global Interdependence and Human Survival 3 s.h.
103:11 Language and Society 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.
113:14 Language and Human Behavior 3 s.h.
113:19 Urban Anthropology 3 s.h.
129:60 Introduction to African American Society 3 s.h.
143:60 Honors Seminar in Social Sciences 3 s.h.

Registration

For general information on registration procedures, see "Registration" in the Schedule of Courses or in the Learning at Iowa section of the Catalog.

Maximum Schedule

The maximum permitted registration is 18 semester hours during a semester, 12 total semester hours during any year’s summer sessions. Students in good academic standing may request permission to register for more hours than the maximum allowed in the Office of Academic Programs.

To qualify for full-time status, students must 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 years) is 15-16 semester hours each semester.

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 before the add deadline 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 before the drop deadline with the signatures 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 add deadline. 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 not listed in the Schedule of Courses, may be added with the necessary signatures any time 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 summer sessions 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.

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 two or four calendar days of a 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.

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

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 period adds are allowed and may decrease the number during the period in which drops are allowed. To change the number of semester hours, a student drops the course and adds it for the desired hours.

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’s signature is obtained. 

Audited courses may not be used to 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 before the add deadline using a Change of Registration form and obtaining the necessary signatures. No changes are accepted after the deadline.

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 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.

Mark of “W”

Undergraduate students are assigned the mark of W (withdrawn) for any course in any undergraduate college dropped after the add deadline. For courses that start or end at times other than the beginning and end of the semester, students may drop the course any time within the first one-fifth of the course’s duration without being assigned a W.

LIMITS ON WITHDRAWING FROM COURSES

Students admitted as degree candidates to the College of Liberal Arts fall 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 are limited to a maximum of five Ws beginning with their fall semester 1994 registration. Ws earned by these students before fall semester 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 is not removed from the record. Requests for such exclusions are made in the Office of Academic Programs.

Withdrawal of Entire Semester’s Registration

Students may withdraw their entire registration any time before the end of the 12th 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.

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 the 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.

Liberal Arts 61

Grading

The following grading system is used in the College of Liberal Arts. All marks except WX appear on the permanent record.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade points for each semester hour</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>Below average</td>
</tr>
<tr>
<td>D-</td>
<td>1.00</td>
</tr>
<tr>
<td>D-</td>
<td>0.67</td>
</tr>
<tr>
<td>F</td>
<td>Failing</td>
</tr>
</tbody>
</table>

Not used in computing G.P.A.:

- S Satisfactory
- P Pass
- N Nonpass
- I Incomplete
- O No grade reported
- R Registered
- W Withdrawn
- WX Withdrawal excused
- # Second-grade-only option

Policies for Plus/Minus Grading

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 grades of A, B, C, D, and F with or without 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 (G.P.A.)

The cumulative grade-point average is computed by:

1. multiplying the number of semester hours in each course by the appropriate grade points;
2. totaling the grade points earned to date; and
3. dividing the sum of grade points earned by the number of hours undertaken, excluding courses in which grades or marks 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 grade-point average. Although grades of A+ have a value of
4.33 in calculating a student’s grade-point average, the grade-point averages displayed at the bottom of the permanent record are truncated so as not to exceed 4.00.

The total cumulative grade-point average includes all college work attempted, both at the UI and at all transfer institutions.

**Incomplete (I)**

Instructors may report a mark of I (incomplete) only if the unfinished part of the student’s work, in a course other than research, thesis, or independent study, is small; 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 mark 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 up to the add deadline. 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 unless this is done, both grades continue to be counted in the grade-point averages.

**Registered/Withdrawn (R/W)**

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. 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. (See “Auditing Courses,” above.)

**Satisfactory/Fail 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 General Education Program 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 to register for S/F courses, since all students enrolled in such courses automatically receive either S or 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. Students also must file for the

**Restrictions**

The second-grade-only option may be used only for University of Iowa courses, including SATURDAY & EVENING CLASSES, 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 may be 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 by a student who already has been awarded a degree from The University of Iowa on a course taken before the degree was conferred.

**Mid-Semester Reports**

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

**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 I (incomplete) or O (no report) are recognized by inclusion on the Dean’s List for that semester. A notation of inclusion on the list is entered on the student’s permanent record.

**President’s List**

The President’s List honors students who achieve a GPA of 4.00 on 12 or more semester hours of graded work and who have no hours of “I” (incomplete) or “O” (no report) for two consecutive semesters. A notation of inclusion on the list is entered on the student’s permanent record.
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 2 percent of the graduating class, “with high distinction” to students in the next highest 3 percent, and “with distinction” to the next highest 5 percent. Ranking is based on students’ grade-point averages for all college-level study undertaken 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. (Also see “Honors Program” in this section and in the Learning at Iowa section of the Catalog.)

Academic Standards
Students in the College of Liberal Arts are expected to meet academic standards set by the college and to demonstrate reasonable progress toward a degree. Academic probation serves as a warning that unless academic performance improves a student may be dismissed from the college and may not graduate. Academic probation also voids the college’s agreement with a student who had elected to participate in the University’s four-year graduation plan.

Academic Probation
Students must achieve the following minimum University of Iowa and total cumulative grade-point averages. Failure to do so results in placement or continuation on probation.
- Freshmen (0-29 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

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,” above).

Dismissal from the College
The College reviews the academic records of students on academic probation at the close of the fall semester and at the close of the spring semester. There is no academic review at the close of the summer session.

Dismissal in January
Students who are on academic probation during a fall semester and who fail to meet the average of a 1.33 (a D+ average) — are subject to dismissal in January. Freshmen and transfer students admitted on probation for a fall semester are included in this group.

Students who were dismissed at the end of the enrolled semester previous to fall and who had the dismissal revoked on appeal must during the fall enrollment either achieve good standing or demonstrate significant improvement with a semester grade-point average of 2.50 or higher. If not, they are subject to dismissal in January.

Students who have been reinstated for a fall semester after an academic dismissal and who fail to meet the minimum standard—a fall semester grade-point average of 2.00 (a C average) — are subject to dismissal in January.

Dismissal in May
Freshmen who enter in the fall semester and who are not admitted on academic probation but who are admitted on probation for the spring semester are subject to dismissal from the college in May if they fail to achieve good standing.

AU other students who are on academic probation for a spring semester and who fail to meet the minimum standard—a spring semester grade-point average of 1.33 (a D+ average) — are subject to dismissal in May. Freshmen or transfer students admitted on probation for a spring semester are included in this group.

Continuing students are subject to dismissal in May after two or more consecutive semesters on academic probation.

Students who were dismissed at the end of the enrolled semester previous to spring and who had the dismissal revoked on appeal must during the spring enrollment either achieve good standing or demonstrate significant improvement with a semester grade-point average of 2.50 or higher. If not, they are subject to dismissal in May.

Students who have been reinstated for a spring semester after an academic dismissal and who fail to meet the minimum standard—a fall semester grade-point average of 2.00 (a C average) — are subject to dismissal in May.

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

Right to Appeal Dismissal
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. The decision of the committee is final. No appeals are considered for revocation of a dismissal that would permit enrollment in a

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. 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. Mail is sent to the current residing address as listed in the student record. To ensure proper receipt of records, students must update their residing address whenever necessary.

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, Student Conduct

Class Attendance
Individual instructors, course directors, or departments 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 necessary for them 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.

Reported Absences

Students who are absent for medical or personal reasons are expected to present evidence to verify the reason. Students may 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 ask the Registration Center to send notification of the absence to each instructor. Instructors may require additional verification.

Final Examinations

A suitable period for 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 announced in the Schedule of Courses. During summer sessions, there is no designated final examination period; final examinations are scheduled before the official end of the session, either during a regular class 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.

Student Conduct

Plagiarism and Cheating

Plagiarism and cheating may result in grade reduction and/or other serious penalties. Plagiarism and cheating include, but may not be limited to:

- presenting the ideas of others without credit to the source;
- using direct quotations without quotation marks and without credit to the source;
- paraphrasing without credit to the source;
- participating in a group project that presents plagiarized materials;
- failing to provide adequate citations for material obtained through electronic research;
- downloading and submitting work from electronic databases without citation;
- submitting material created or written by someone else as one's own, including purchased term or research papers;
- copying from someone else's exam, homework, or laboratory work;

allowing someone to copy or submit one's own work as the other's own;
- accepting credit for a group project without doing one's share;
- submitting the same paper in more than one course without the knowledge and approval of the instructors;
- using notes or other materials during a test or exam without authorization;
- not following the guidelines specified by the instructor for a "take-home" test or exam.

Students who have questions about the proper use and citation of sources, or the details and guidelines for any assignment, should discuss their questions with the instructor.

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. If the instructor comes to the conclusion that the student has plagiarized or cheated, he or she in consultation with the departmental executive officer (DEO) may decide to reduce the student’s grade in the course, even to assign 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 that the penalty unjust, he or she may request a hearing. Information on appeal procedures is available in the Office of Academic Programs.

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. The instructor reports in writing to the dean of students any disciplinary action undertaken against a student.

Records of disciplinary actions taken against students reside in the Office of Academic Programs and are destroyed when the students graduate, or after five years if the students have left the University or have not graduated. A notation of disciplinary action does not appear on a student's permanent record, even if the student has been suspended or expelled.

Student Complaints Concerning Faculty Actions

A student who has a complaint is responsible for following the procedures described below. Complaints may concern inappropriate faculty conduct (including inappropriate course materials), incompetency in oral communication, inequities in assignments, scheduling of examinations at other than authorized and published times; failure to provide disability accommodations, or grading grievances. For complaints involving the assignment of grades, it is College policy that grades cannot be changed without the permission of the department concerned.

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 consult the course supervisor (if the instructor is a teaching assistant), the departmental executive officer, or in some departments, 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.

The associate dean attempts to resolve the complaint and, if necessary, may convene a special committee to recommend appropriate action. In any event, the associate dean responds 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 in the University Operations Manual. A description of these formal procedures is available from the Office of Academic Programs.

If the complaint involves sexual harassment, these procedures need not be followed. The University policy on sexual harassment and consensual relationships in the instructional context can be found in “Policies and Regulations Affecting Students,” available at the Campus Information Center, in the Office of Affirmative Action, and in September as a supplement to The Daily Iowan.

The Office of the University Ombudsperson responds to problems and disputes brought forward by all members of the University community—students, staff, and faculty— that appear unsolvable through existing channels. Before consulting the ombudsperson, an attempt should be made to resolve problems by following the procedures described above.

Questions about any of the procedures described above can be answered by program assistants in the Office of Academic Programs.
The general military course (GMC) consists of a laboratory during each semester of the freshman and sophomore years. Any student who meets AFROTC qualifications and is in good academic standing with the University is eligible to participate in the CMC.

**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.

**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 completed all GMC requirements 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 gain 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 $150 per month, tax-free. Applicants are selected on both objective and subjective factors. Students should apply directly to the head of aerospace military studies.

All cadets in the last two years of AFROTC are eligible for some financial assistance. They also receive $150 per month, tax-free. Uniforms are furnished as well as all books for AFROTC classes.
African American World Studies

Chair: Frederick Woodard
Professors: Michael Harris (History/African American World Studies), Peter Nazareth (English/African American World Studies), Allen Roberts (Anthropology/African American World Studies)

Associate Professors: James Giblin (History/African American World Studies), Fredrick Woodard (English/African American World Studies), Michaeline Crichlow (African American World Studies), Peter Nazareth (English/African American World Studies), Fredrick Woodard (English/African American World Studies)

Assistant professor: Michaeline CicciUow (African American World Studies)

Undergraduate degree: B.A. in African American World Studies; minor in African American Studies
Graduate degree: M.A. in African American World Studies (cognate concentrations leading to M.A. and Ph.D. in American Studies)

The African American World Studies Program focuses on the study of people of the African diaspora, particularly in the United States, and on the peoples of Africa. The program is interdisciplinary, drawing cooperating faculty from American studies, anthropology, art, education, English, French, geography, history, political science, Spanish and Portuguese, sociology, and women’s studies.

Because a thorough understanding of African American and African cultures cannot be achieved through study restricted to the perspective of a single discipline, all students in the program are required to pursue courses in both humanities and social sciences. The African American World Studies Program continually expands its perspectives by developing or cross-listing courses that fuse the knowledge drawn from many disciplines in the humanities and social sciences.

The program originated in 1969 through courses intended to foster awareness of African Americans’ role in the development of the United States; those courses also were designed to promote understanding of the conditions and concerns of African Americans. Since then, the courses have been organized into a curriculum that includes a program leading to a Bachelor of Arts in African American world studies, an undergraduate minor in African American studies, a Master of Arts in African American studies, and concentrations of African American studies in programs leading to a B.A., M.A., or Ph.D. in American studies. Students seeking the Ph.D. in English or history also can organize courses in African American literature or African American history into a special field or cognate area.

Although most of the students in the Ph.D. program are preparing to work as teachers and administrators in colleges and universities, the B.A. and M.A. programs provide valuable backgrounds for many other students seeking careers in community work, public school teaching, religion, government, and political science.

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 African American studies option (30 semester hours), the African American world studies option (39 semester hours), or art African studies option (33 semester hours). Transfer course work for application to the major is evaluated on an individual basis.

The African American studies option focuses on 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 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.

African American Studies Option

REQUIRED COURSES

129:60 Introduction to African American Society 3 s.h.
129:61 Introduction to African American Culture 3 s.h.


129:65 Introduction to African American History 3 s.h.
129:80 Critical Skills Seminar 3 s.h.
129:99 Senior Seminar 3 s.h.
129:116 African American Literature I 3 s.h.
129:117 African American Literature II 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; they are encouraged to take at least 3 semester hours of these electives in courses focused on Africa or Blacks in the Caribbean.

African American World Studies Option

REQUIRED COURSES

129:8 Literatures of the African Peoples 3 s.h.
129:60 Introduction to African American Society 3 s.h.
129:61 Introduction to African American Culture 3 s.h.
129:138 African and Afro-American Interactions 3 s.h.

For majors, the above four courses are prerequisite to the advanced required courses in history and literature and to 129:99 Senior Seminar.

129:116 African American Literature I 3 s.h.
or 129:117 African American Literature II 3 s.h.
or 129:119 African Literature 3 s.h.
or 129:163 Precolonial African History 3 s.h.
or 129:164 African History Since 1880 3 s.h.
or 129:65 Introduction to African American History 3 s.h.
or 129:80 Critical Skills Seminar 3 s.h.
or 129:99 Senior Seminar 3 s.h.
or 129:189 Themes in African American History 3 s.h.

Linguistics 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 African Studies Program, in consultation with the faculties of their respective programs. Students who elect this option are advised by the two program chairs. 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.
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.

Linguistics Requirement

African languages offered at The University of Iowa are Swahili and Yoruba.

129:15-16 Elementary Swahili I-II 8 s.h.
129:17-18 Intermediate Swahili I-II 8 s.h.
or 129:25-26 Elementary Yoruba I-II 8 s.h.
or 129:27-28 Intermediate Yoruba I-II 8 s.h.

Students also may fulfill the language requirement by demonstrating competence in another African language.
AFRICAN CONTENT ELECTIVE

Two courses (6 semester hours) focused on Africa, chosen from the following:
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 The Art and Archaeology of Ancient Africa 3 s.h.
141:202 Seminar: Problems in African Art 2-3 s.h.

HUMANITIES ELECTIVES

Two courses (6 semester hours) focused on humanities:
141:103 African Drama 3 s.h.
141:119 African Literature 3 s.h.
141:163 Francophone Literature of the African Diaspora 3 s.h.
141:227 Three African Writers 3 s.h.
141:240 Studies in African Francophone Literature 3 s.h.

SOCIAL SCIENCE ELECTIVES

Two courses (6 semester hours) focused on social sciences:
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) focused on Africa, chosen from the following:
101:2 Art of Africa, Oceanic, and Pre-Columbian America 3 s.h.
101:109 The Arts of the African Diaspora 3 s.h.
36:150 The Political Economy of Developing Countries 3 s.h.
44:94 International Development 3 s.h.
44:157 Third World Development support 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 arr.
113:134 Diaspora African Cultural and Political Movements 3 s.h.
129:175 Black Action Theatre 3 s.h.
141:110 African News Colloquium 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 the following:
101:92 Art of Africa, Oceanic, and Pre-Columbian America 3 s.h.
101:109 The Arts of the African Diaspora 3 s.h.
36:150 The Political Economy of Developing Countries 3 s.h.
44:94 International Development 3 s.h.
44:157 Third World Development support 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 arr.
113:134 Diaspora African Cultural and Political Movements 3 s.h.
129:175 Black Action Theatre 3 s.h.
141:110 African News Colloquium 2 s.h.
141:115 Topics in African Studies 3 s.h.

Four-Year Graduation Plan

The following requirements must be completed by certain students in order to graduate. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

AFRICAN AMERICAN STUDIES OPTION

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

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

AFRICAN WORLD STUDIES OPTION

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

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

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

Honors

The 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 seminar essay to a committee of three faculty members, 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 seminar committee may choose to hear an oral defense of the final project, usually in the 12th week of the student's last semester.

Minor

The African American World Studies Program offers an undergraduate minor in African American studies. The requirements conform to the general requirements for minors in the College of Liberal Arts. In consultation with their advisers, students choose courses in the following areas: (15 semester hours) 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 3.00 in all courses in the minor. Courses numbered 100 and above may be selected from 129-prefix courses in the list at the end of this section of the Catalog.

Graduate Programs

Master of Arts

The interdisciplinary curriculum leading to a Master of Arts in African American studies provides an intensive, organized, graduate-level examination of African American and African cultures 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 African Americans and Africans may be necessary or helpful.
Curriculum Requirements
The M.A. requires 34 postbaccalaureate semester hours. Requirements include the following.
129:211 Introduction to Research in African American Culture 3 s.h.
129:312 Advanced Research in African American Culture (thesis/project) 4 s.h.
Additional courses in African American world studies (at least this much credit) 12 s.h.
Electives 15 s.h.
Students should choose electives in consultation with their advisers. All 15 semester hours of electives may be chosen from courses numbered above 100. Students should consult an adviser in the program to determine which courses numbered above 100 are approved for an M.A.
Because the African American world studies advisory committee encourages 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 include 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 African American world 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.

Thesis/Project Requirements
A thesis is not required but is an option for a Master of Arts. Students who elect to write a thesis must explore a topic of African American culture and/or experience in the thesis using 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 African American culture and/or experience. When completed, this project must be presented and defended before an appropriate class in African American studies. Credit for the thesis or project usually is earned through registration in 129:312 Advanced Research in African 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 college credit in African or African American literature and/or history courses, and a grade-point average of at least 2.70 in previous college courses in African American studies. Students may be asked to take, without credit toward the master’s degree, courses to remedy deficiencies in their 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, students seeking a Ph.D. in American studies with a concentration in African American studies are preparing to be teachers or research scholars at the college or university level.
Ordinarily, students seeking the African American studies concentration take a minimum of 36 semester hours of graduate study in African American world studies and write a dissertation on a topic in African American culture. Students interested in this 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 African American studies courses as cognate areas or special fields in Ph.D. programs in history, English, and other disciplines. For 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.

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.

History
16A:61 American History 1492-1877 3 s.h.
16A:62 American History 1877-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.

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 Developing Countries 3 s.h.

Sociology
34:168 Social Inequality 3 s.h.

Social Work
42:147 Racism and Discrimination 3 s.h.

Curricular 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 Black 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 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.

129:111 African American World Studies 69

For Advanced Undergraduates and Graduates

129:103 African Drama 3 s.h.

129:107 Art of West Africa 3 s.h.

129:119 African American Drama 3 s.h.

129:113 Africans in the New World 3 s.h.

129:114 Race and Ethnic Relations 3 s.h.

129:115 Social Anthropology of the Caribbean 3 s.h.

129:116 African American Literature I 3 s.h.

129:117 African American Literature II 3 s.h.

129:118 Topics in African America Studies 3 s.h.

129:119 African Literature 3 s.h.

129:120 Introduction to African Religions 3 s.h.

129:121 African Islam 3 s.h.

129:122 African American Music and Culture 3 s.h.

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

129:125 Readings in African American Culture 3 s.h.

129:126 Elementary Yoruba I 4 s.h.

129:127 Intermediate Yoruba I 4 s.h.

129:128 Intermediate Yoruba II 4 s.h.

129:130 History of Black Music 3 s.h.

129:131 Topics in Black Music 3 s.h.

129:132 African American Music and Culture 3 s.h.

129:133 Race and Cultural Identity in the United States 3 s.h.

129:134 Diaspora African Cultural and Political Movements 3 s.h.

129:135 Francophone Literature of the African Diaspora 3 s.h.

129:136 Race and Gender in Africa and the Caribbean 3 s.h.

129:137 History of Slavery in the U.S.A. 3 s.h.

129:138 African and Afro-American Interactions 3 s.h.

129:139 African American Poetry 3 s.h.

129:140 Race, Racism, and American Law 3 s.h.

129:141 Black Women: Reproduction and Resistance 3 s.h.

129:142 Foreign Language 3 s.h.

129:143 African American World Studies 69

129:144 African American World Studies 69

129:145 Elementary Swahili I for Graduates 3 s.h.

129:146 Elementary Swahili II for Graduates 3 s.h.

129:147 Intermediate Swahili I for Graduates 3 s.h.

129:148 Intermediate Swahili II for Graduates 3 s.h.

129:149 Race, Ethnicity, and International Relations 3 s.h.

129:150 World Studies 3 s.h.

129:151 History of Slavery in the U.S.A. 3 s.h.

129:152 History of Black Music 3 s.h.

129:153 History of Black Music 3 s.h.

129:154 History of Black Music 3 s.h.

129:155 History of Black Music 3 s.h.

129:156 History of Black Music 3 s.h.

129:157 History of Black Music 3 s.h.

129:158 History of Black Music 3 s.h.

129:159 History of Black Music 3 s.h.

129:160 History of Black Music 3 s.h.

129:161 History of Black Music 3 s.h.

129:162 History of Black Music 3 s.h.

129:163 History of Black Music 3 s.h.

129:164 History of Black Music 3 s.h.

129:165 History of Black Music 3 s.h.

129:166 History of Black Music 3 s.h.

129:167 History of Black Music 3 s.h.

129:168 History of Black Music 3 s.h.

129:169 History of Black Music 3 s.h.

129:170 History of Black Music 3 s.h.

129:171 History of Black Music 3 s.h.

129:172 History of Black Music 3 s.h.

129:173 History of Black Music 3 s.h.

129:174 History of Black Music 3 s.h.

129:175 History of Black Music 3 s.h.

129:176 History of Black Music 3 s.h.

129:177 History of Black Music 3 s.h.

129:178 History of Black Music 3 s.h.

129:179 History of Black Music 3 s.h.

129:180 History of Black Music 3 s.h.

129:181 History of Black Music 3 s.h.

129:182 History of Black Music 3 s.h.

129:183 History of Black Music 3 s.h.

129:184 History of Black Music 3 s.h.

129:185 History of Black Music 3 s.h.

129:186 History of Black Music 3 s.h.

129:187 History of Black Music 3 s.h.

129:188 History of Black Music 3 s.h.

129:189 History of Black Music 3 s.h.
129:188 Topical Issues in Social science About Blacks 3 s.h.
The Black experience examined through materials, methods of one or more selected social science disciplines.

129:189 Themes in African American History 3 s.h.
Same as 16A:185.

129:191 Advanced Black Action Theatre 3 s.h.
Advanced version of 129:175, with focus on different plays; for theater arts and African American world studies majors. Consent of instructor required. Same as 49:191.

129:192 Elvis as Anthology 3 s.h.
Redefine the music of other performers through listening to Elvis, watching video and movie clips, discussing relevant texts of fiction, nonfiction.

**For Graduates**

129:210 Readings in the Culture of Black America 3 s.h.
Social, economic, political, religious experiences that have influenced Black Americans.

129:211 Introduction to Research in African American Culture arr.
Methodologies, bibliographies, issues, resources significant to study of African American culture. Consent of instructor required. Same as 45:210.

129:212 Advanced Readings in Black Culture arr.
Textual, social, political analyses of works by Black authors.

129:221 Analytical Exposition in Afro-American studies 3 s.h.
Synthesis of primary and secondary research materials for analytical and comprehensive studies in black culture, other related graduate courses, and future publications.

129:225 Seminar: Problems in African Art 2-3 s.h.
Same as BH:310, 141:202.

129:227 Three African Writers 3 s.h.
Same as 8:227, 141:227.

129:228 Studies in African American Literature 3 s.h.
Same as 8:228.

129:235 Studies in African Francophone Literature 3 s.h.
Same as 9:240, 141:240.

Same as 16:245.


129:310 Sources for Study: African American Literature 3 s.h.
Events, folk traditions, folklore, customs, myths, legends, individuals as sources of allusions in African American literature.

129:312 Advanced Research in African American culture arr.
Seminar or independent study; for graduate students concentrating in African American studies. Prerequisite: basic courses in African American studies and 129:211.

129:350 Seminar: Critical Theory 3 s.h.
Theory in context of African American literature, culture.

**AFRICAN STUDIES PROGRAM**

Chair: Allen F. Roberts (Anthropology/African American World Studies)

Committee members: Joseph Ascroft (Journalism and Mass Communication), Joel Baikin (Political Science), Sandra Baikin (Comparative Literature), Jacques Bourgeacq (French and Italian), Phil Carls (International Education and Services), Christopher Caly (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 (Anthropology), 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 (ASP) helps students gain a broad understanding of contemporary life in Africa and the historical and cultural forces that shape the continent. ASP fosters collaboration among students and faculty to increase opportunities for teaching and research, both at the University and abroad.

ASP is a constituent program of the Center for International and Comparative Studies (CICS). Several established programs and unusual resources of The University of Iowa contribute to ASP: close collaboration with the African American World Studies Program, with its emphasis on the African diaspora; University Libraries’ strong Africanaca and specialist librarian; the world famous Stanley Collection of African Art at the UI Museum of Art; the Project for Advanced Study of Art and Life in Africa (PASALA), which supports student research on campus and in Africa; the International Writing Program, with its frequent African participants; the University’s film program, which often focuses on Africa; and the many African and Africanist scholars from around the world who visit the University.

ASP maintains formal student/faculty exchange programs with the University of Dar-es-Salaam (Tanzania), the University of Ibadan (Nigeria), and the University of Ouagadougou (Burkina Faso) as well as less formal liaisons with African and Africanist colleagues throughout Africa and Europe and in several Asian and South American countries.

**Undergraduate Programs**

The African Studies Program gives undergraduate students two opportunities for interdisciplinary study of Africa: a major track offered as an option in the B.A. in African American World Studies, and a certificate program.

**B.A. in the African Studies Option**

The African studies option in the B.A. in African American world studies is administered jointly by the chairs of the African American World Studies Program and the African Studies Program, in consultation with the faculties of their respective programs. Students are advised by the two program chairs.

**Required Courses**

The B.A. 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.
AFRICAN CONTENT ELECTIVE
One course (3 semester hours) in African studies or having a significant African content, chosen from the following:

H1:2 Art of Africa, Oceania, and Pre-Colombian America 3 s.h.
1 H:109 The Arts of the African Diaspora 3 s.h.
30:150 The Political Economy of Developing Countries 3 s.h.
44:94 International Development 3 s.h.
44:157 Third World Development support 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 arr.
113:134 Diaspora African Cultural and Political Movement 3 s.h.
129:175 Black Action Theatre 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.
141:180 Advanced Undergraduate Program 3 s.h.

AFRICAN CONTENT ELECTIVE
One course (3 semester hours) in African studies or having a significant African content, chosen from those offered by the African American World Studies Program (see “African American World Studies” in this section of the Catalog).

DIASPORA ELECTIVE
One course (3 semester hours) focused on the experience of Blacks in the diaspora; the course should be chosen from those offered by the African American World Studies Program (see “African American World Studies” in this section of the Catalog).

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

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

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

Before the seventh semester begins: at least eight courses in the major, including at least two semesters of required African language (or equivalent competency), and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 10 courses in the major

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

Honors
Students 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 project (see “African American World Studies” in the Catalog).

Certificate Program
The certificate program in African studies complements a departmental major and prepares 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 is a foreign language requirement. A grade-point average of at least 2.00 is required in all course work applied toward the certificate. Courses applied toward the certificate also may be used to satisfy General Education Program 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 the 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. When this course is not offered, another may be substituted, with consultation and approval by the African Studies Program director.

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 above under “Humanities Electives” and “Social Science Electives.”

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 the African Studies Program adviser.

44:262 Political Economy of Regional Development 3 s.h.
141:110 African News Colloquium 2 s.h.
141:180 Advanced Undergraduate Seminar in African Studies 3 s.h.
141:202 Seminar: Problems in African Art 3 s.h.
141:227 Three African Writers 3 s.h.

Study Abroad

The African Studies Program supports U.S. and international researchers for one month to one year of residence through the Visiting Research/Fielwork 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 (PASAIA) also provides scholarships. Other awards are offered through the University of Iowa Study Abroad Center.

Scholarships

Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fielwork 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 (PASAIA) also provides scholarships. Other awards are offered through the University of Iowa Study Abroad Center.

Visiting Scholars and Professionals

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 since the expiration of the grant. Another linkage was established in 1988 with the University of Ibadan (Nigeria) and another is being activated with the University of Dar-es-Salaman (Tanzania). 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 among four Iowa institutions of higher learning and
are to establish joint research and training programs and faculty-student exchanges that enhance the institutions’ abilities to address development planning, management, and analysis of issues.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>141:07</td>
<td>Introduction to African Studies</td>
</tr>
<tr>
<td>141:11</td>
<td>Ge: foreign civilization and culture or humanities.</td>
</tr>
<tr>
<td>141:15</td>
<td>Elementary Swahili I</td>
</tr>
<tr>
<td>141:16</td>
<td>Elementary Swahili II</td>
</tr>
<tr>
<td>141:17</td>
<td>Intermediate Swahili I</td>
</tr>
<tr>
<td>141:18</td>
<td>Intermediate Swahili II</td>
</tr>
<tr>
<td>141:25</td>
<td>Elementary Yoruba I</td>
</tr>
<tr>
<td>141:26</td>
<td>Elementary Yoruba II</td>
</tr>
<tr>
<td>141:27</td>
<td>Intermediate Yoruba I</td>
</tr>
<tr>
<td>141:28</td>
<td>Intermediate Yoruba II</td>
</tr>
<tr>
<td>141:30</td>
<td>Introduction to African Art</td>
</tr>
<tr>
<td>141:71</td>
<td>Social science Perspectives on Contemporary Africa</td>
</tr>
<tr>
<td>141:103</td>
<td>African Drama</td>
</tr>
<tr>
<td>141:105</td>
<td>Independent Study</td>
</tr>
<tr>
<td>141:107</td>
<td>Art of west Africa</td>
</tr>
<tr>
<td>141:110</td>
<td>African News Colloquium</td>
</tr>
<tr>
<td>141:111</td>
<td>The Art of southern and Eastern Africa</td>
</tr>
<tr>
<td>141:112</td>
<td>Art and Archaeology of Ancient Africa</td>
</tr>
<tr>
<td>141:113</td>
<td>Case Study in Development Nigeria</td>
</tr>
<tr>
<td>141:115</td>
<td>Topics in African Studies</td>
</tr>
<tr>
<td>141:120</td>
<td>Pre-colonial African History</td>
</tr>
<tr>
<td>141:121</td>
<td>African History Since 1800</td>
</tr>
<tr>
<td>141:123</td>
<td>Topics: Modern African History</td>
</tr>
<tr>
<td>141:125</td>
<td>Elementary Swahili I for Graduates</td>
</tr>
<tr>
<td>141:126</td>
<td>Elementary Swahili II for Graduates</td>
</tr>
<tr>
<td>141:127</td>
<td>Intermediate Swahili I for Graduates</td>
</tr>
<tr>
<td>141:135</td>
<td>Elementary Yoruba I for Graduates</td>
</tr>
</tbody>
</table>

**AGING STUDIES PROGRAM**

Coordinator: Hermine McLeran

Professors: John P. Boyle (Religion), Kathleen Buckwalter (Nursing), Krishna B. Chandran (Biomedical Engineering), Lorraine Dorfman (Social Work), Ronald L. Entinger (Prosthodontics), Stephen S. Fox (Psychology), Vijay K. Gooi [Biomedical Engineering], Joel S. Hand (Preventive and Community Dentistry), John H. Harvey (Psychology), Donald D. Heistad (Internal Medicine), Albert B. Hood (Counselor Education), Evan W. Kligman (Family Practice), Sheldon F. Kurtz (Law), Steven M. Levy (Preventive Medicine and Environmental Health), Thomas H. Walz (Social Work)

Associate professors: Aljemon J. Bolden (Preventive and Community Dentistry), Catherine A. Cole (Marketing), Kelly Cole (Sport, Health, Leisure, and Physical Studies), Malcolm H. Pope (Biomedical Engineering), Michael L. Tegue (Sport, Health, Leisure, and Physical Studies), Toni Tropp-Reimer (Nursing), Robert B. Wallace (Preventive Medicine and Environmental Health), Thomas H. Walz (Social Work)

Adjunct instructors: Cindy Hansuault (Credit Programs), Lisa Walz (Social Work)

Programs:

**Certificate**

The certificate in aging studies requires 21 semester hours of approved aging-related courses numbered 100 or above. This aging-specific course work is defined as University of Iowa courses that focus primarily on older persons, the aging process, or interventional methods or techniques whose target is the older adult or aging. A grade-point average of at least 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. A minimum of 15 semester hours of course work in aging studies must be earned at The University of Iowa.

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.

Graduate students and other students who hold a baccalaureate degree are awarded the certificate when they have completed all certificate requirements.

A student may not be awarded both a minor and a certificate in aging studies.

Certificate 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 the following.

153:108 Basic Aspects of Aging 3 s.h.
34:130 Aging and Society 3 s.h.
153:184 Multidisciplinary Perspectives on Aging 3 s.h.
153:129 Introduction to Gerontology 3 s.h.

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.

*28: 191 Internship I arr.
*28: 192 Internship II arr.
*42: 193 Field Experience 8-12 s.h.
*42: 292 Advanced Practicum in Family Centered Practice I and II arr.
*96: 133 Nursing and Health Transitions II 7 s.h.
*96: 145 Nursing Leadership and Care Management 8 s.h.
153:190 Field Work in Gerontology arr.

Other departmental practicum or research courses are accepted if the content and focus of the course of study is aging-specific.

Students complete their course work for the certificate by choosing courses from those offered by aging studies and from the list of associated courses.

ASSOCIATED COURSES

Anthropology
113:147 Special Topics in Anthropology: Death, Bereavement, and Ethnicity in Late Life 3 s.h.

Biological Sciences
2:271 Seminar in Cell Physiology 2 s.h.

Biomedical Engineering
51:514 Biomechanics of Aging 3 s.h.

Internal Medicine
78:608 Independent Study in Geriatrics arr.

Nursing
96:116 Loss and Death in Clinical Nursing Practice 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.

Social Work
42:190 Selected Aspects of Social Work and Social Welfare 3 s.h.

Sociology
*34:230 Sociology of the Family 3 s.h.
34:233 Aging and Human Development 3 s.h.

Speech Pathology and Audiology
3-50: 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.

Minor
Undergraduate students in the Colleges of Liberal Arts, Business Administration, Nursing, Engineering, or Education may complete a minor in aging studies by taking 15 semester hours in courses outside of their major department or college. The courses must be approved by the Aging Studies Program; the minor must be approved by the student’s college or department. At least 12 of the 15 semester hours must be taken in advanced courses (100 level or above) at The University of Iowa. Students must have a grade-point average of at least 2.00 in all work 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 degree 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.

Courses

153:030 Human Development and Behavior 3 s.h. Developmental stages of the human organism from conception through senescence, physiological, intellectual, emotional, social factors. Same as 96:50. Prerequisite: 31:1 or 31:3.
153:108 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. Same as 42:108.
153:110 Growing Old in a New Age 3 s.h. Process of aging; including physiological, psychological, social aspects; myths of aging; impact of elderly on global demographics; ethical dilemmas of an aging society.
153:120 Women in the Later Years 3 s.h. How American society views older women; focus on health, caregiving, employment, retirement, legal rights, ethnic and multicultural perspectives, family relationships, housing, gender equity, public policy.
153:122 Geriatrics and Health Care for the Elderly 2.3 s.h. Biomedical, psychological, sociological aspects of terminal aging; major diseases, disorders that relate to the elderly; assessment methodologies, health care policies, preventive and health promotion measures; teaching methodology, resources.
153:124 Independent Study in Gerontology arr. Literature reviews, individual projects, and/or research. Consent of instructor required.
153:129 Introduction to Gerontology 2-3 s.h. Concepts of aging; demographic, psychological, sociological aspects of aging, implications for nursing practice; interdisciplinary approach. Senior standing or consent of instructor required. Same as 96:129.
153:133 Nutrition Through the Life Span 3 s.h. How body processes and nutritional needs change with age and physiological state; effects of food-drug medication interactions; anorexia, bulimia, and adolescent pregnancy; emphasis on food and food habits that minimize nutrition-related problems. Prerequisite: 28:130. Same as 28:133.
153:136 Physical Activity and Aging 3 s.h.
153:145 Introduction to Geriatric Dentistry 2 s.h. Biological, psychological, social aspects of aging; normal aging, disease processes, pathological changes that affect treatment, patient management, Same as 112:145.
153:146 Health Promotion for Older Adults 3 s.h. Strategies, factors towards long-term goal of health promotion; disease prevention; slowing decline of chronic conditions to allow independent, rewarding lives. Same as 28:146.
153:163 Introduction to Biomedical Ethics 3 s.h. Ethical dimensions of modern life sciences; emphasis on problems of aging. Same as 32:163.
153:165 Communication Disorders and Aging 2 s.h. Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communication and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech-language pathologists and audiologists. Offered summer sessions of odd years. Same as 3:165.
153:166 Exercise Programs: Special Populations 3 s.h. Development, implementation, instruction of exercise programs for special populations. Same as 28:166.
153:168 Aging and Leisure 3 s.h. Status of the elderly in relation to issues of retirement, use of free time, and factors supporting leisure activity; leisure services in long-term care. Same as 28:168.
153:169 Literature and Aging 3 s.h. Roles of literature, visual arts, film, and other forms of popular culture in shaping older adults’ feelings about and experiences of aging.
153:184 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. Same as 42:184.
153:185 Social Policy and the Elderly 3 s.h. Public social policies, their effect on wellbeing of elderly, including women and minorities; U.S. policies, those of other nations. Junior or higher standing required. Prerequisite: 42:143 and introductory course on aging (34:130, 42:184, %129), or consent of instructor. Same as 42:185.
153:190 Fieldwork in Gerontology arr. Opportunities for students in various disciplines to relate their areas of study to elderly, aging; interdisciplinary relationships; approaches to meeting needs of elderly. Prerequisite: 34:130 or 42:184 or 96:129 or consent of instructor. Same as 42:190.
153:193 Suffering, Death and Faith 2.3 s.h. Role of religion with persons suffering from life-changing and life-threatening illness. Same as 32:193.

Aging Studies Program . Liberal Arts 73
153:210 Long-Term Care Management 3 s.h.  
Options, organization, delivery in the United States; needs of the long-term care patient; emphasis on management of facilities, such as nursing homes, hospitals, specialized care units. Offered by Saturday/Sunday Evening Classes. Same as 80:210.

153:211 Individual and Family Development: Life span 3 s.h.  
Infancy through senescence; families from their beginnings through their later years; theoretical, methodological issues. Graduate standing required. Same as 42:211.

153:219 Aging and the Family 2.3 s.h.  
Same as 42:219.

153:222 Social Policy Issues in Health Care 3 s.h.  
Same as 42:222.

**AMERICAN INDIAN AND NATIVE STUDIES PROGRAM**

Chair: Mary Whelan  
Professors: S. James Anaya (Law), Robert N. Clinton (Law), Joe Dan Coulter (Neuroscience/Anatomy), June Helm (Anthropology)  
Associate professors: Laura Donaldson (English/Women’s Studies), Laura Graham (Anthropology), Mary Whelan (Anthropology)  
Undergraduate degrees: certificate, minor in American Indian and Native Studies  
Graduate degree: certificate in American Indian and Native Studies

The American Indian and Native Studies program (AINSP) is an interdisciplinary program that focuses on the histories, cultures, languages, arts, crafts, beliefs, political and social organizations, economies, geographies, literatures, and contemporary legal and political issues of Native Americans of the United States and other indigenous peoples 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**

Undergraduate students may earn a certificate or a minor in American Indian and native studies. All students plan their programs in close cooperation with AINSP faculty advisers.

**Certificate**

Students pursuing the certificate in American Indian and native studies must earn at least 20 semester hours of credit in courses chosen from the list of approved AINSP courses, with a grade-point average of at least 2.00.

149:49 Introduction to American Indian and Native Studies 3 s.h.  
or 149-100 Native American Studies 3 s.h.

149:102 Introduction to American Indian History and Policy 3 s.h.  
149:101 American Indian and Native Studies Seminar (taken two semesters) 2 s.h.  
Additional courses chosen from the list of approved AINSP courses (see “Associated Courses”) 12 s.h.

Courses applied toward the AINSP certificate also may be used to satisfy General Education Program 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 earn both a certificate and a minor in American Indian and native studies.

**Minor**

To earn a minor in American Indian and native studies, students must complete 15 semester hours in courses chosen from the list of approved AINSP courses, with a grade-point average of at least 2.00.

This course work must include the following.

One of these:

149:49 Introduction to American Indian and Native Studies 3 s.h.  
149:100 Native American Studies 3 s.h.  
149:102 Introduction to American Indian History and Policy 3 s.h.  
149:101 American Indian and Native Studies Seminar 1 s.h.

Additional courses chosen from the list of approved AINSP courses (see “Associated Courses”) 11 s.h.

Students may not count toward the minor more than 6 semester hours of courses from 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 faculty advisers about available options. With consent of instructor, academic credit may be earned in 149:195 Directed Cultural Experience.

**Graduate Program**

Graduate students must apply to the program chair to be admitted to the AINSP graduate certificate program. Students who earn an undergraduate certificate in the program may not receive a graduate certificate.

Students pursuing the graduate certificate must earn at least 20 semester hours of credit in courses numbered 100 or above chosen from the list of approved AINSP courses. They also must maintain a grade-point average of at least 3.00 in AINSP courses counted toward the graduate certificate. The courses must include the following.

149:100 Native American Studies 3 s.h.  
149:102 Introduction to American Indian History and Policy 3 s.h.

149:101 American Indian and Native Studies Seminar (taken two semesters) 2 s.h.  
Additional courses chosen from the list of approved AINSP courses 10 s.h.

**Associated Courses**

In addition to the courses listed below, courses concerned in part with American Indians or with issues relevant to American Indians may be used as electives to satisfy requirements for the undergraduate certificate, the minor, and the graduate certificate, subject to AINSP faculty approval.

For course descriptions, see the appropriate departmental sections of the *Catalog*.  

**AMERICAN STUDIES**

45:155 Cultural Diversity in America (when content is appropriate) 3 s.h.

**ANTHROPOLOGY**

113:20 Introduction to Midwestern Prehistory 3 s.h.

113:110 (149:110) Indians of North America 3 s.h.

113:114 Amazonian Indians 3 s.h.

113:117 The Maya 3 s.h.

113:163 Archaeology of Mesoamerica 3 s.h.

113:166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.

113:167 North American Archaeology 3 s.h.

113:182 Archaeology of the American Southwest 3 s.h.

113:193 Paleoethnobotany 3 s.h.

**ART AND ART HISTORY**

1 H:2 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.

1 H: 104 Art of Pre-Columbian America 3 s.h.

1 H: 199 Topics in Art History (when content is appropriate) 3 s.h.

**ENGLISH**

8:105 Literature and Culture of 19th-Century America 3 s.h.

8:113 Native American Literature 3 s.h.

8:141 Literature and Culture of America Before 1800 4 s.h.

8:185 (149:185) Native American Autobiography 3 s.h.

8:241 (131:241) American Indian Women’s Literature 3 s.h.

8:448 Seminar: Native American Literature 3 s.h.

**HISTORY**

16A: 114 Introduction to Native American History 3 s.h.

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 (149:211, 149:170) Native American Law I 3 s.h.

91:334 (149:171) Native American Law II 2-3 s.h.

In-depth American Indian cultural experience, such as study or volunteer work, supervised by an AINSP faculty member. Same as 91:635

149:176 Indigenous Peoples in the International Legal System arr. Historical and contemporary development of international law and institutions as they relate to Native Americans and indigenous peoples worldwide. Consent of instructor required. Same as 91:603

149:185 Native American Autobiography 1 s.h. Same as 91:105

149:195 Directed Cultural Experience arr. In-depth American Indian cultural experience, such as study or volunteer work, supervised by an AINSP faculty member. Consent of instructor required.


AMERICAN STUDIES PROGRAM

Chair: John Raeburn
Professors: 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 professors: Jane Desmond (American Studies/Women’s Studies), Lauren Rabinovitz (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 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.

Required Courses

A distinctive feature of the American Studies major is the opportunity to create an individual plan of study that emphasizes the particular interests the student brings to the study of American culture. Shortly after declaring a major, a student should meet with his or her faculty adviser to explore the range of course work available and to begin shaping an individual plan of study. By the student’s second term in the major, the student and adviser should have agreed upon a plan of study for completing the major requirements.

The major usually consists of 12 courses totaling 36 semester hours. Students are especially encouraged to complete some courses that reflect the diversity of American culture. 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 and/or other departments) 18 s.h.

At least 24 semester hours of the major must be earned at The University of Iowa.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

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

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

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

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

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

Honors

The American studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates 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. 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 12th 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 grade-point average of at least 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 45:72 and 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 another discipline. It usually includes 12 courses totaling 36 semester hours. Requirements include the following.

45:200-201 Theory and Practice in American Studies I-II 6 s.h.

Two other courses or seminars in American studies 6 s.h.

In addition, master’s degree students select five-eight additional courses relevant 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 courses that center on American diversity.
Master’s degree candidates must perform satisfactorily 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, for which a student may receive up to 6 semester hours of 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, which includes a core of American studies courses in interdisciplinary methods and substantial course work in two major fields. Course requirements are as follows.

45:200-201 Theory and Practice in American Studies I-II (introductory seminars) 6 s.h.
Two or more additional graduate courses or seminars in American Studies 6 s.h.
First major field (at least six courses) 18 s.h.
Second major field (at least six courses) 18 s.h.
Electives 6 s.h.
Dissertation (up to 18 s.h.)

Although permitted considerable flexibility in planning a program, American studies Ph.D. candidates must meet certain basic requirements. The introductory seminars 45:200-201 Theory and Practice of American Studies should be taken as early as possible, one during each of the student’s first two years in residence. The additional American Studies graduate courses provide further models for interdisciplinary inquiry.

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

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

Admission Ph.D. Candidacy

The program stresses the importance of advising. Each doctoral student and his or her faculty adviser map out a coherent plan of study that reflects the student’s particular interests in American cultural studies. Usually this plan of study is formulated tentatively by the end of the first year in residence. During the first semester of the second year, the student submits the plan to the entire faculty, who review it and then meet with the student to discuss it. When the faculty accepts the plan of study, the student is admitted to Ph.D. candidacy. In the next three or four semesters he or she completes the established plan and begins to prepare for comprehensive examinations.

Comprehensive Examinations

The comprehensive exam comprises three written portions and an oral examination. Two of the written exams explore the student’s major fields; these are most often four-hour exams but may, at the examiner’s discretion, be given on a take-home basis. The third written exam, the position paper, is always written in advance of the rest of the exam and under the supervision of an American studies faculty member. In it, the student lays out his or her general approach to American cultural studies and provides an exemplification of that approach. The oral examination covers material from the two written exams and the position paper.

Thesis

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

Internships

Qualified graduate students in American studies can arrange internships with a number of local agencies, including the State Historical Society of Iowa, the Division of Historic Preservation, The University of Iowa Museum of Art, the Iowa Humanities Board, 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, Spertus 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 45:580 Material Culture Internship. Other internships in social agencies, government, or business also may be arranged.

Courses

**Primarily for Undergraduates**

45:00 Cooperative Education Internship 0 Sh.

45:1 American Values 3 s.h.

Representative texts, artifacts, cultural values in historical and contemporary perspective. GE: humanities.

45:5 American Issues 3 s.h.

Representative issues: radio and American culture; cultural history of the Civil War era; American history, literature, culture.

45:30 Introduction to African American Culture GE: cultural diversity or humanities. Same as 129:61.

45:55 Race and Ethnicity in the U.S. 3 s.h.

45:40 Gender in the U.S. 3 s.h.

Representative topics: sex roles and gender relations, feminine and masculine dimensions of American culture. Same as 131:48.

45:44 Lesbian Lives in the U.S. 3 s.h.

Same as 131:64.

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 road in American culture.

45:70 Popular Arts and Entertainment in the U.S. 3 s.h.

Rock ‘n’ roll, jazz, humor, sport.

45:72 Film and American Culture 3 s.h.

How American movies reflected and helped shape American culture between 1925 and 1975; their relationship with historical and social change; economic and artistic system of Hollywood filmmaking.

45:75 American Music 3 s.h.

Cultural, historical study of rock ‘n’ roll, jazz, blues, country and western, folk music.

45:90 Seminar in American Cultural Studies 3 s.h.

Interdisciplinary perspectives on a single theme or period.

45:95 Honors Project 3 s.h.

Independent interdisciplinary research, writing.

For Undergraduates and Graduates

45:00 Independent Study arr.

Consent of instructor required.

45:110 American Culture of the Gilded Age 3 s.h.

American culture of the late 19th century through novels, paintings, popular culture, material artifacts.

45:112 American Culture in the Nineteenth Century 3 s.h.

Antebellum and post Civil War periods through historical records, artifacts, the arts; emphasis on roles of race, class, gender, regional groupings in social and cultural experiences.

45:115 American Culture of the 1930’s 3 s.h.

The Great Depression through historical records, literature, photography, movies, other arts; emphasis on expression of American life and thought, social and cultural experience.

45:123 American Literature and History 3 s.h.

Examination of fictional histories (novels about history), their relationship to historical interpretation. Same as 8123.

45:130 Dance in American Culture 3 s.h.

Social, popular, theatrical forms since the 1960s; emphasis on relationship between aesthetics, the body, cultural politics. Same as 131:30.

45:140 The Cultures of American Women 3 s.h.

Women’s experience, emphasis on relationship between individual lives, broad social and cultural content. Same as 131:48.

45:150 Topics in American Cultural Studies 2-4 s.h.

Special topics in American history, literature, culture.

45:155 Cultural Diversity in America 3 s.h.

45:157 Gender on Stage 3 s.h.

How gendered bodies and rules are displayed on stage; popular, elite, experimental, traditional, mass media theatre; dance, music; performing gender in everyday life, theorizing spectatoriality, politics of drag, feminist theatre. Same as 131:57.

45:160 America as a Consumer Culture 3 s.h.

Developments in business, advertising public relations, technology, marketing; their effect on images and ideas in American culture.

45:183 International Views of America 3 s.h.

45:192 American Popular Arts History, interpretation, criticism of popular arts, such as broadcasting, filmic, musical.
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, expressive culture (art, verbal arts, literature, music, and dance), human prehistory, human evolution, environment and culture, and urban anthropology. Department faculty members offer ethnology courses on Africa, China, Oceania, Southeast Asia, the Middle East, Latin America, the Caribbean, Japan, and Native North America.

The undergraduate program is designed to give students the broadest possible cross-cultural background; specialization is discouraged. Course work is encouraged in related disciplines such as sociology, linguistics, geography, history, art history, psychology, biological sciences, museum studies, and foreign languages. Students also are encouraged to participate in archaeological field and laboratory research and in biological and linguistic anthropology research.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's four-year graduation plan.

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

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

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

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

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

Honors

The 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 research seminar, a graduate-level course, and an honors research project. Consult the department honors adviser for more information.

Minor

To minor in anthropology, students must complete 15 semester hours in anthropology with a grade-point average of at least 2.00. 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 three program tracks: general anthropology (thesis or nonthesis), which is designed to prepare students to deal with any aspect of anthropology at an introductory level; feminist anthropology (thesis or nonthesis); and anthropology with a concentration in museology (nonthesis only).

The degree is designed to be awarded to students after two years in the graduate program. All students, except those who choose the museology concentraton, must either complete a thesis or pass a comprehensive examination. Students who choose to pursue a Ph.D. in anthropology have already been admitted to the Ph.D. program. Students who choose to pursue a Ph.D. in anthropology have already been admitted to the Ph.D. program. Requirements for the program in feminist anthropology are more specific than those for the program in general anthropology.

The number of semester hours required for the M.A. in general or feminist anthropology varies from 30 to 36, depending on the student’s previous anthropological training. The M.A. in anthropology with a concentration in museology requires 36 semester hours.

No more than 9 semester hours earned in courses outside of anthropology may be applied toward the M.A. in anthropology.

**General Anthropology**

All students are required to take 113:102 Anthropological Data Analysis or another statistics course in the first three years of graduate study. Students who plan to pursue a Ph.D. are encouraged to take this course as part of their master’s work.

**CORE COURSES**

One course from each of the following groups (total of 12 s.h.)

**Sociocultural Anthropology**

113:201 Seminar: Anthropological Theory (for those who were undergraduate majors) 3 s.h.
113:220 Seminar: Feminism and Anthropology (note prerequisites) 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:246 History of Anthropology 3 s.h.

**Linguistic Anthropology**

113:171 Anthropological Linguistics 3 s.h.
113:172 Language and Culture 3 s.h.
113:174 Ethnography of Communication 3 s.h.
113:273 Seminar: Language and Gender 3 s.h.

**Archaeology**

113:164 Comparative Prehistory 3 s.h.
113:265 Seminar: History of Archaeology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.

**Biological Anthropology**

113:285 Seminar: Biological Anthropology 3 s.h.
113:290 Feminist Perspectives on Biology and Culture (only for students accepted in the feminist anthropology program) 3 s.h.

**ELECTIVES**

Students must successfully complete at least an additional 18 semester hours of course work during their first two years of study. These courses should be chosen in consultation with the adviser and committee members. Elective hours may include courses in other disciplines, directed study, or up to 6 semester hours of thesis credit (for students in the thesis program).

**Feminist Anthropology**

All students are required to take 113:102 Anthropological Data Analysis or another statistics course in the first three years of graduate study. Students who plan to pursue a Ph.D. are encouraged to take this course as part of their master’s work.

**CORE COURSES**

One course from each of the following groups (total of 12 s.h.)

**Sociocultural Anthropology**

113:220 Seminar: Feminist Anthropology 3 s.h.

**linguistic Anthropology**

113:271 Seminar: Anthropological Linguistics 3 s.h.
113:273 Seminar: Language and Gender 3 s.h.

**Archaeology**

113:164 Comparative Prehistory 3 s.h.
113:265 Seminar: History of Archaeology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.

**Biological Anthropology**

113:290 Feminist Perspectives on Biology and Culture 3 s.h.

Students must complete at least an additional 12 semester hours of course work during their first two years of study. These electives should be chosen in consultation with the adviser and committee members. Elective work may include courses in other disciplines, directed study, or up to 6 semester hours of thesis credit (for students in the thesis program).

**Master’s Degree with 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 a M.A. in anthropology with a concentration in museology. Instruction in the organization and function of museums with emphasis on exhibit design, collection management, and educational outreach development forms part of the graduate program.

**REWired COURSES**

Students must take all of the following for a total of 30 semester hours.

**Anthropology**

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.
Electives in anthropology 6 s.h.

**Museum Studies**

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.
24:113 Introduction to Conservation of Museum Objects 2 s.h.
24:120 Collection Care and Management 2 s.h.
24:146 Organization of Information Resources 1 s.h.
24:150 Directed Studies and Projects arr.
24:180 Museum Internship (may be taken for O credit hours) arr.

**SUGGESTED ELECTIVES**

Students may elect courses in museum studies, science education, instructional design and technology, geology, biological sciences, art and art history, and English (nonfiction writing).

**Doctor of Philosophy**

The Ph.D. represents a balance between general competence in all subfields of anthropology obtained during master’s work and professional specialization and competence for independent research and teaching one of the four subfields (sociocultural anthropology, linguistic anthropology, archaeology, and biological anthropology).

All doctoral candidates are required to carry out original anthropological research. To insure focus on the student’s research interests, there is an integrated process of simultaneous preparation of reading lists, research proposals for submission to granting agencies, a dissertation proposal, and preparation of position papers (see “The Comprehensive Process”).
Upon the successful completion of position papers, which is reported to the Graduate College as successful completion of comprehensive examinations, the student becomes a candidate for the Ph. D., does dissertation research, writes a dissertation, and defends it to complete the degree.

**REQUIRED COURSE WORK**

The doctoral requirements a minimum of 72 semester hours beyond the B.A. Students must take one theory course beyond the course they took to fulfill the master’s requirements in their specialization subfield. This course should be chosen from one of the following lists.

**Sociocultural Anthropology**

- 113:201 Seminar: Anthropological Theory 3 s.h.
- 113:205 Reading French Theorists 3 s.h.
- 113:206 Evidence and Other Realities 3 s.h.
- 113:207 Reading Social Structure 3 s.h.
- 113:220 Seminar: Feminist Anthropology 3 s.h.
- 113:240 Seminar: Sociocultural Anthropology 3 s.h.
- 113:241 Economic Anthropology 3 s.h.
- 113:244 Semiotics: Interpreting Signs in Language and Culture 3 s.h.
- 113:245 Symbolism and Structuralism 3 s.h.
- 113:246 History of Anthropology 3 s.h.
- 113:250 Theoretical Approaches to Ritual 3 s.h.
- 113:252 Cognitive Anthropology 3 s.h.

**Linguistic Anthropology**

- 113:171 Anthropological Linguistics 3 s.h.
- 113:172 Language and Culture 3 s.h.
- 113:173 Language and Gender 3 s.h.
- 113:174 Ethnography of Communication 3 s.h.
- 113:191 Structure of Mayan Languages 3 s.h.
- 113:244 Semiotics: Interpreting Signs in Language and Culture 3 s.h.
- 113:271 Seminar: Anthropological Linguistics 3 s.h.

**Archaeology**

- 113:265 Seminar: History of Archaeology 3 s.h.
- 113:268 Seminar: Archaeological Theory and Method 3 s.h.
- 113:269 Post-Processual Archaeology 3 s.h.

**Biological Anthropology**

- 113:285 Seminar: Biological Anthropology 3 s.h.

Students should take all lecture courses and seminars that are relevant to the areas they intend to cover in their position papers. A total of 18 semester hours of non-anthropology courses may be counted toward the 72 semester hours required for the Ph. D., including the 9 semester hours earned during master’s work.

Students should not rely heavily on independent study courses.

**FOREIGN LANGUAGE**

All doctoral candidates must demonstrate reading and/or speaking knowledge of one foreign language. This requirement must be met before the dissertation research is begun.

**THE COMPREHENSIVE PROCESS**

The process of working toward a Ph.D. consists of several phases after the completion of master’s work. Students work closely with their committee at all stages.

Immediately after completing their master’s work, students begin consultations with their committee and start to compile an annotated bibliography of works relevant to their intended research program. The bibliography does not require formal review; rather, it is a working document for the student’s use during work toward the Ph.D.

After completing 45 semester hours of graduate study (but not later than the sixth semester), the student drafts research proposals for the program of dissertation research. After working to refine a proposal and completing at least 54 semester hours of graduate study (but not later than the seventh semester), the student submits the research proposals to funding agencies and prepares a formal dissertation prospectus, which he or she defends before the departmental faculty.

After 63 semester hours of graduate study (but not later than the eighth semester), the student completes two position papers: one in the area of specialization and one in the primary topical area. (In some fields, e.g., biological anthropology, a geographical area may not be relevant.) The committee then prepares questions in consultation with the candidate.

**DISSERTATION**

Students usually conduct dissertation research after they complete the comprehensive process. Dissertations are usually based on fieldwork, but some are based on data from archival collections, laboratory projects, collections, or other source materials.

**Field Research**

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

**Admission**

Applicants for admission to the graduate program in anthropology are considered regardless of their previous field of training. 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. in general anthropology or feminist anthropology from The University of Iowa may apply for admission to the Ph.D. program. Admitted students who have earned an M.A. in anthropology from another institution may proceed directly to a specialized Ph.D. program.

Applicants with an M.A. in another discipline must seek admission as a first-year graduate students 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 each 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 the following:

- a completed University application form;
- transcripts of all previous undergraduate and graduate work;
- three letters of recommendation from individuals competent to judge the applicant’s potential for graduate training;
- 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 must have a grade-point average of 3.00 or higher. However, applicants with lower grade-point averages may be admitted with conditional status if other criteria indicate strong potential for graduate work.

**Assistantships**

Financial aid awards for incoming students are limited and highly competitive. Most graduate students receive 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 director of graduate studies.

**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 Verriere, 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. Through HRAF and other library resources, anthropology students have access to source materials on more than 400 different cultures. The Project for the Advanced Study of Art and Life in Africa (PASALA) and the University of Iowa Museum of Art give students access to the museum’s Stanley Collection of African 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 United States, Pacific Islands, Asia, the Middle East, Europe, Africa, the Caribbean, Mesoamerica, South America, and the Subarctic. Recent field research has been conducted in Brazil, Mexico, Guatemala, Nicaragua, Peru, Micronesia, Iceland, Great Britain, France, Mali, Burkina Faso, Benin, Chad, Gabon, Ghana, Cameroon, Nigeria, Zaire, Jamaica, 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 China and 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; economic decision making among Mexican artisans; women in socialist societies; alcohol and drug studies; ethnohistory, ecology, and social organization of Indian peoples of the Amazon 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 agricultural and fisheries policy in the United States and Iceland; economic anthropology in Southeast Asia and Iceland; cultural politics, ethnicity, semiotics, and critical discourses in the United States, the Middle East, and Hawaii; diaspora, Africans and African American society and culture; language and gender, and expressive culture and performance in the Brazilian Amazon; and ritual and social change in Japan.

Courses

For Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>113:000</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>113:3</td>
<td>Introduction to the study of Culture and Society</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>113:10</td>
<td>Anthropology and Contemporary World Problems</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>

Comparative study of culture, social organization. GE: social sciences.

Selected world problems from an anthropological perspective; current dilemmas and those faced by diverse human groups in recent times and distant past. GE: social sciences.

Data, theories on evolution of human cultures from end of Pleistocene to emergence of complex societies; emphasis on prehistoric cultural information from world areas from which relatively complete sequences are available. GE: historical perspectives.

Processes, products of human evolution from perspectives of heredity and genetics, evolutionary theory, human biological characteristics, fossil record, archetypal evidence, biocultural behaviors. GE: natural sciences.

Human language in context of animal communication; development acquisition of language; biological base; language as a linguistic system in cultural social context. GE: social sciences.

Prehistoric cultural sequence of Iowa viewed against background of North American prehistory; current and future research. GE: social sciences.

Readings in art or subdivision of anthropology in which student has had basic course work.

Advanced Courses

General Anthropology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<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>
</tr>
<tr>
<td>113:107</td>
<td>Transcultural Mental Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:108</td>
<td>Health and Cultural Diversity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:147</td>
<td>Special Topics in Anthropology</td>
<td>2.3 s.h.</td>
</tr>
<tr>
<td>113:148</td>
<td>Special Topics in Anthropology</td>
<td>2.3 s.h.</td>
</tr>
<tr>
<td>113:151</td>
<td>Sociology of the Third World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:160</td>
<td>Alcohol and Culture</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

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: 113:5 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.

113:209 Research Design and Proposal Writing 3 s.h.

Anthropological research design; preparation for proposals for fieldwork or laboratory analysis. Graduate standing or consent of instructor required.

113:246 History of Anthropology 3 s.h.

Development as a discipline: comprehending persons, concepts, principles, and events. GE: fine arts or humanities. Same as 45:199.

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.

113:226 History of Anthropology 3 s.h.

Development as a discipline: comprehending persons, concepts, principles, and events. GE: fine arts or humanities. Same as 45:199.

113:102 Comparative Study of Culture and Society 3 s.h.

Comparative study of culture, social organization. GE: social sciences.

113:103 Introduction to Prehistory 3 s.h.

Data, theories on evolution of human cultures from end of Pleistocene to emergence of complex societies; emphasis on prehistoric cultural information from world areas from which relatively complete sequences are available. GE: historical perspectives.

113:118 Social Anthropology of the Caribbean 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. Junior or higher standing required. Same as 129:113.

113:114 Amazonian Indians 3 s.h.

Native languages, cultures of indigenous lowland South America; theoretical problems that have guided research in area; areal patterns, social, political; groupings, theoretical perspectives that have shaped understanding of area. Prerequisite: 113:3 or 113:101 or 149:100.

113:117 The Maya 3 s.h.

Maya of Guatemala, Mexico from the Classic Period (eighth century) to present, history, art, science, achievements, religion, cultural and social systems, language, politics, identity, contemporary problems.

Ethnology

113:110 Indians of North America 3 s.h.

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

113:113 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. Junior or higher standing required. Same as 129:113.

113:119 Social History of Africa 3 s.h.

Social, cultural history of Africa; theoretical problems that have guided research in area; areal patterns, social, political; groupings, theoretical perspectives that have shaped understanding of area. Prerequisite: 113:3 or 113:101 or 149:100.

113:120 Peoples and Cultures of Africa 3 s.h.

Anthropological theory, ethnography; African ethnic groups, including the Gikuyu of Kenya, the Yoruba of Nigeria; traditional and contemporary; varying environment, history, political economy. Junior or higher standing required. Same as 129:117, 141:17.

113:121 African Islam 3 s.h.

Islam in combination with several local religions; focus on the Mouride Brotherhood of Senegal. Same as 128:128, 129:121.

113:122 African American Music and Culture 3 s.h.

Musical styles and their social settings, cultural heritage and development, contexts, legacies and liaison, parallels and variations in musical traditions in the African diaspora. Same as 128:122.

113:123 Japanese Society and Culture 3 s.h.

Cultural anthropology of Japan, including historical tradition, religious ethos, social organization, human ecology, education and political institutions; emphasis on how these aspects relate to and influence one another. GE: foreign civilization and culture. Same as 390:125.
113:109 Literature and Anthropology 3 s.h.
Topics vary. Same as 8:15, 15:15.
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 anthropology course.
113:116 Self and Other 3 s.h.
Comparative, theoretical discussions of social identity; principles of social differentiation, categorization; sociopolitical histories, consequences; contextualization of U.S. notions of ethnicity, race, nation, class, gender, culture. Junior or higher standing required.
113:119 Urban Anthropology 3 s.h.
Cross-cultural approach; emphasis on urbanizing processes, migration and adaptation, aspects of class and ethnicity in urban settings, urban economic relations. GE: social sciences.
113:135 Work and Society 3 s.h.
How work is organized in society; social relations characteristic of different modes of production; case studies of foraging, peasant, advanced capitalist societies. Junior standing or consent of instructor required.
113:136 Japanese Values through Literature and Film 3 s.h.
Japanese social relationships, attitudes, perceptions as expressed through literature and film; focus on dramatic changes resulting from rapid urban-industrialization of recent decades. Prerequisite: 393:125 or 113:125 or consent of instructor. Same as 30:126.
113:137 Ethnology of Oceanica 3 s.h.
Comparative ethnography of island Oceania (Micronesia, Melanesia). Postcontact and current history of Pacific area; special problems of living in island habitats. Contributions of Oceanic ethnography to anthropological theory; contemporary problems, research trends. GE: foreign civilization and culture.
113:138 Community and Social Organization in Japan 3 s.h.
Japanese social organization within variety of community contexts, from farm village to business corporation; emphasis on maintaining sense of communal identity, legitimizing contemporary social patterns through alliance to the past. Junior or higher standing or consent of instructor required.
113:131 Latin American Economy and Society 3 s.h.
Development, present structure of Latin American economy and society; emphasis on rural regions in context of national development; focus on area as a whole. GE: foreign civilization and culture.
113:132 Latin American Studies Seminar 3 s.h.
113:133 Race and Cultural Identity in the United States 3 s.h.
Institutional character of cultural, political racism in the United States; creation of stereotypes as cultural images; how these images are used to justify political/economic marginalization of minority groups. Same as 129:133.
113:134 Diaspora African Cultural and Political Movements 3 s.h.
Political/economic foundations of Diaspora African sociocultural movements from 18th to 20th century; Rastafariants, Nation of Islam, African American nationalist, pan-Africanist movements. Prerequisites: introductory anthropology or sociology course or one in African Diaspora African history or consent of instructor. Same as 129:134.
113:137 Race and Gender in Africa and the Caribbean 3 s.h.
Race and sexual oppression in Africa and the Caribbean; use of African American women’s experiences for cross-cultural analysis, emphasis on interface between political-economic and cultural hegemony. Same as 129:136.
113:159 Anthropology of African Art 3 s.h.
What art is, what it does for people who create it; nature of symbols, representation; changing social, historical contexts, how object-oriented anthropology advances learning; African naturalization; research on objects in the University’s permanent collection. Same as 129:159, 141:159.

Sociocultural Anthropology

113:109 Literature and Anthropology 3 s.h.
Topics vary. Same as 8:15, 48:15.
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 anthropology course.
113:116 Self and Other 3 s.h.
Comparative, theoretical discussions of social identity; principles of social differentiation, categorization; sociopolitical histories, consequences; contextualization of U.S. notions of ethnicity, race, nation, class, gender, culture. Junior or higher standing required.
113:119 Urban Anthropology 3 s.h.
Cross-cultural approach; emphasis on urbanizing processes, migration and adaptation, aspects of class and ethnicity in urban settings, urban economic relations. GE: social sciences.
113:135 Work and Society 3 s.h.
How work is organized in society; social relations characteristic of different modes of production; case studies of foraging, peasant, advanced capitalist societies. Junior standing or consent of instructor required.
113:160 Environmental Archaeology 3 s.h.
Methods, theories from ecology, cultural ecology, paleoecology, cultural evolution, general systems theory, and economics applied to prehistoric archaeological data; emphasis on relationships between past cultures and their local and regional environments. Prerequisite: 113:12.

113:161 Old World Paleolithic Prehistory 3 s.h.
Human occupation of Old World during Pleistocene; fossil remains, artifacts, settlement patterns, climatic reconstruction, evolutionary processes; survey and evaluation. Prerequisite: 113:12.

113:162 Laboratory Methods in Archaeology 3 s.h.
Materials recovered by excavation; survey training. Consent of instructor required.

113:163 Archaeology of Mesocmerica 3 s.h.
Archaeological data related to the evolution of civilization in Mesocmerica; sequences from harrter-gatherers to AD 1519; emphasis on Central Mexico, Maya area. Prerequisite: 113:12 or graduate standing in anthropology or consent of instructor.

113:164 Comparative Prehistory 3 s.h.
Cultural developments in Old World, New World; emphasis on developments from pre-agricultural societies to appearance of urban civilizations; focus on Neocmerica, Central Andes, Near East, Egypt, Indus Valley, China. Prerequisite: 113:12 or graduate standing in anthropology or consent of instructor.

113:165 History of Anthropology 3 s.h.

113:166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.
Background for development of Aztec state, nature of civilization encountered by Spaniards in 1519; contemporary peoples affected by Aztecs. Prerequisite: 113:12 or graduate standing in anthropology or consent of instructor.

113:167 North American Archaeology 3 s.h.
Paleoindian cultural development north of Mexico from initial occupation to European contact and conquest; emphasis on dynamics of culture change.

113:168 Method and Theory in Archaeology 3 s.h.
Current theoretical approaches, methods used to investigate the past; site formation processes, taphonomy, sampling and research design, typology and seriation, reconstruction, cultural evolution. Prerequisite: 113:12.

113:170 Archaeology of Aztec State Development 3 s.h.
Archaeological, documentary data; readings, data analysis, computer work. Prerequisite: 113:12 and 113:163 or 113:164 or 113:165 or 113:166 or graduate standing in anthropology or consent of instructor.

113:177 Quaternary Seminar 1 s.h.
Paleoclimates, paleoecology, archaeology, glaciology, geology, other fields dealing with environments of the past 2.5 million years. Same as 12:174.

113:178 Hinter-Gatherer Ethnoarchaeology 3 s.h.
Variability in adaptations of hunter-gatherers on a global scale; emphasis on subsistence, mobility, social organization; archaeological record of prehistoric hunter-gatherers interpreted through study of modern societies. Prerequisite: anthropology graduate student standing or consent of instructor.

113:182 Archaeology of The American Southwest 3 s.h.
Survey of archaeological data of Four Corners area of southwestern United States and northern Mexico; focus on Archaic and Ancestral Puebloan cultures. Emphasis on cultural ecology, adaptive change, interactions between cultures. Prerequisite: 113:12.

113:189 Zooarchaeology 3 s.h.
Faunal analysis, including taxonomy and identification, skeletal anatomy, taphonomy, population studies, aging and sexing specimens, economic anatomy, butchering studies, breakage and cut marks, food sharing. Prerequisite: upper-level archaeological course.

113:193 Paleopathology 3 s.h.
Relationship between plants and ancient peoples, with emphasis on archaeological evidence of prehistoric agriculture in eastern North America; lab work on ancient Iowa plant remains. Prerequisite: 113:12 or graduate standing or consent of instructor.

113:194 Roman Archaeology 3 s.h.
Archaeology and ethnology of Roman civilization from Iron Age to 8th century occupation of the Palatine Hill to the end of the Roman empire in the West, A.D. 476. Same as 20:194.

113:196 Advanced Field Research in Archaeology 3 s.h.
Late Upper Paleolithic site in France; advanced excavation techniques applied to well-preserved faunal remains and intact site structure; emphasis on computer-assisted surveying, faunal identification, lithic technology.

113:197 Special Topics in Archaeology 3 s.h.

113:198 Special Topics in Anthropology 3 s.h.

113:199 Field Research in Archaeology 3 s.h.
Beginning skills in field techniques in excavation, lab work, record keeping at nearby prehistoric sites.

113:265 Seminar History of Archaeology 3 s.h.
Evolution of archaeological thought through analysis of its historical roots; emphasis on New World. Graduate standing in anthropology or consent of instructor.

113:268 Seminar: Archaeological Theory and Method 3 s.h.
Development, current status of theory, methodology in American archaeology. Anthropology graduate standing or consent of instructor required.

113:269 Post-Processual Archaeology 3 s.h.
Recent advances in archaeological theory that emphasize symbolic and structural archaeological interpretative archaeology (post-modernist). Marxist archaeology, feminist archaeology; ethical concerns about how archaeology creates the past. Consent of instructor required.

Biological Anthropology

113:187 Human Evolution 3 s.h.
From earliest fossil record of apes to origin and diversification of hominid family and appearance of modern Homo sapiens; evidence from paleontological, comparative anatomy, historical studies, archaeology considered from evolutionary perspective. Prerequisite: 2:131 or 12:121 or 113:13 or consent of instructor.

113:188 Primate Behavior, Ecology, and Evolution 3 s.h.
Origin, diversification of the primate order through fossil evidence; morphology, systematic, behavior, ecology of living species. Prerequisite: introductory course in physical anthropology or biology.

113:195 Laboratory Methods in Biological Anthropology 3 s.h.
Specimen preparation, cataloguing, moulding and casting, photography, computer analyses, library research. Consent of instructor required.

113:265 Seminar Biological Anthropology 3 s.h.
Physical anthropology, including heredity and genetics, evolutionary theory, human biological characteristics, primate and human fossil record, primate behavior and ecology, human adaptations. Graduate standing in anthropological sciences, or related department or consent of instructor required.

113:290 Feminist Perspectives on Biology and Culture 3 s.h.
Physical anthropology and primate archaelogy from a feminist perspective; emphasis on intervention of gender, race, and class in the history and practice of biological anthropology, including the field of cultural anthropology. Consent of instructor required. Same as 131:290.

Linguistic Anthropology

113:171 Anthropological Linguistics 3 s.h.
Structures of spoken languages; emphasis on techniques for analyzing linguistic data; history, phonetics, phonology, morphology, syntax, Same as 103:371.

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 sociocultural anthropology, or consent of instructor. Same as 113:170.

113:173 Language and Gender 3 s.h.
Gender and language variation; current research on gender-specific linguistic forms and usage in the United States, other language communities; relevant principles of linguistic theory, analysis. Same as 110-130, 131-147.

113:174 Ethnography of Communication 3 s.h.
Archaeological 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 writing. Graduate standing or consent of instructor required.

113:191 Structure of Mayan Languages 3 s.h.
Grammar; may include historical, social, cultural perspectives. Consent of instructor required. Same as 103:191.

113:244 Semiotics: Interpreting Signs in Language and Culture 3 s.h.
Puriarian semiotic and Saussurean conceptual frameworks; focus on anthropological, linguistic issues. Graduate standing or consent of instructor required.

Same as 103:271.

113:273 Seminar: Language and Gender 3 s.h.
Role of language and discourse in cultural constructions of gender identities and relations, including domination and resistance; theoretical approaches that have shaped thought on the language and gender nexus. Prerequisites 113:171 or 113:172 or 113:220 or 312:22 or consent of instructor. Same as 103:221.

Individual Reading and Research

113:176 Honors Research 2-4 s.h.
Project chosen in consultation with honors adviser. May be repeated.

113:183 Independent Study 2-4 s.h.
Consent of instructor required.

113:186 Honors Research Seminar 2-4 s.h.
Preparation for writing honors thesis, including project conception and research, proposal writing, oral and written presentations of student research. Open only to anthropology honors students. Pre- or consent of 113:176.

113:380 npc-comprehensive Research 2-4 s.h.

113:383 Independent Study arr.

113:384 Research: Anthropology arr.

113:385 Thesis arr.

APPLIED MATHEMATICAL AND COMPUTATIONAL SCIENCES

Chair: Herbert W. Hethcote

Faculty

Helen Marie Keel (Government), Paul K. A. Kikkert (Mechanical Engineering), Gregory R. Carmichael (Chemical and Biochemical Engineering), Kyung K. Choi (Mechanical Engineering), Soum Dasgupta (Electrical and Computer Engineering), Donald D. Dorfman (Psychology), Edward J. Haug (Mechanical Engineering/Civil and Environmental Engineering), Herbert W. Hethcote (Mathematics), Raj Jagannathan (Management Sciences), Douglas W. Jones (Computer Science), Joseph K. Kearney (Computer Science), William H. Klink (Physics and Astronomy), George Knorr (Physics and Astronomy), Kenneth Kortanek (Management Sciences), Russell V. Lent (Statistics and Actuarial Science), George Neumann (Economics), Greg C. Oden (Psychology), Víctor C. Patel (Mechanical Engineering), Florian Potra (Mathematics), Raj Nagpaul (Geography/Civil and Environmental Engineering), Teylor Rus (Computer Science), Luddy O. Strachan (Mathematics), Tsung Tom-That (Mathematics), George G. P. Woodworth (Statistics and Actuarial Science), Yin-yu Ye (Management Sciences)

Graduate degree: Ph.D. in Applied Mathematical and Computational Sciences

Applied mathematicians formulate scientific concepts and problems in mathematical terms; solve the resultant mathematical problems using analytical and computational methods; and discuss, interpret,
and evaluate the solutions. They explore areas of mathematical application and develop mathematical theories in new areas.

Career opportunities for applied mathematicians include faculty positions in colleges and universities, research positions in industrial and governmental laboratories, and professional consulting positions.

Program

The Program in Applied Mathematical and Computational Sciences at The University of Iowa is an autonomous, broadly based interdisciplinary program leading to the Doctor of Philosophy degree. The program helps students achieve a command of theoretical and applied mathematics and obtain basic knowledge of one area in another science (behavioral, biological, engineering, medical, physical, or social). The program is flexible; students can concentrate on applied mathematics, such as differential equations and numerical analysis, or on other applicable techniques in mathematics. Scientific computing is an important part of applied mathematics today, so it is often a part of student training and dissertation research.

Applicants should have a desire to apply a mathematical science (mathematics, statistics, or computer science) to relevant scientific problems in another science. To be prepared for graduate-level course work in both mathematics and a science, applicants should have a bachelor’s or master’s degree with a strong mathematics component and some background in the chosen science.

plan of Study

Faculty members help each student plan a course of study that is consistent with the student’s background, interests, and goals. These individual programs are designed to help students develop expertise in methods of applied mathematics and build a good foundation in related topics of theoretical mathematics. The individual programs also provide sufficient knowledge in 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 mathematical science department after they complete part of their plan. Students find suitable thesis problems and supervisors with the help of the faculty.

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. Information about admission requirements, financial support, graduate study, computing facilities, employment opportunities, recent graduates, and the faculty is available on The University of Iowa’s World-Wide Web site. For application forms and more information about the academic program, write to the chair of the Program in Applied Mathematical and Computational Sciences.

Courses

22A:397 Seminar: Applied Mathematical and Computational Sciences Current research by faculty, students, guests. Consent of instructor required.
22A:399 Reading and Research Consent of advisor required.

ART AND ART HISTORY

Director: Dorothy Johnson
Associate professors: Ronald Cohen, David O. Dunlap, Robert Glasgow, Ab Gratama, Dorothy Johnson, Ann Roberts, Robert Rorex, John Beldon Scott, James Sutter, Margaret Shatton, Steve Thunder-McGuire
Adjunct associate professors: Tim Barrett, Esters Milman
Assistant professors: William Dewey, Joni Kinsey, Gely Verna

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, professors of art history, teachers, museum directors and curators, theater designers, commercial designers, and art administrators.

Studio Art

The studio art program is based on the idea that the philosophical issues of society 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 other venues. Graduate students are especially encouraged to examine the contexts of visual and verbal issues central to their own work and that of their contemporaries.

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

Art History

The history of art, a broad intellectual discipline, is central to the humanities. A 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, 19th century, Renaissance, and 20th century.

Art Education

The art education major prepares undergraduate and graduate students for licensure 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 program in literature, science, 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 interested students with proven abilities 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-referenced courses originating in the School of Art and Art History may not be counted as non-art electives. The B.A. in art requires the following.

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

1H:2 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.
1H:5 Western Art and Culture before 1400 3 s.h.
1H:6 Western Art and Culture after 1400 3 s.h.
1H: 16 Asian Art and Culture 3 s.h.

Two additional art history courses (other than 1H:2, 1H:5, 1H:6, and 1H:16 and preferably taken after the two chosen from that group) 6 s.h.

Three studio courses:
1A:1 Colloquium 1 s.h.
1A:3 Basic Drawing (prerequisite for all studio courses) 2 s.h.
1A:4 Basic Design (prerequisite for all studio courses) 2 s.h.

Any two of these three-dimensional courses:
1C:60 Ceramics I 3 s.h.
1G:84 Metalsmithing and Jewelry I 3 s.h.
1J:90 Intermedia I 3 s.h.
1N: 15 Undergraduate Sculpture I 3 s.h.

Any two of these two-dimensional courses, from two different studio areas:
1D:21 Problems in Design I: Form and structure 3 s.h.
or
1D:28 Graphic Design I 3 s.h.
1E:7 Life Drawing I 3 s.h.
1E:9 Painting I 3 s.h.
1L:34 Beginning Photography 3 s.h.
1M:21 Undergraduate Intaglio and Relief I 3 s.h.
or
1M:31 Undergraduate Lithography 3 s.h.

Electives, chosen only from courses that originate in the School of Art and 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 3 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 determines students’ placement in, or exemption from, the sequence of basic studio courses.

Art Education

Students seeking licensure in art education complete the requirements for the B.A. or B.F.A. degree in art. They also take the following courses, which are offered by the School of Art and Art History or the College of Education.

1E: 196 Concepts in Art Education 3 s.h.
1E: 198 Art Education Studio 3 s.h.
7E: 143 Methods: Art 3 s.h.
7E: 192 Special Area Student Teaching 6 s.h.
7E: 180 Human Relations for the Classroom Teacher 3 s.h.
7P: 75 Educational Psychology and Measurement 3 s.h.
7S: 90 Introduction and Practicum: Art 2 s.h.
7S: 100 Foundations of Education 3 s.h.
7S: 105 Advanced Methods: Art 3 s.h.
7S: 187 Seminar: Curriculum and Student Teaching 3 s.h.
7S: 191 Observation and Laboratory Practice in the Secondary School 6 s.h.
7U: 100 Mainstreaming the Exceptional Learner 3 s.h.
7W: 92 Introduction to Microcomputing for Teachers 1 s.h.

Minor in Art

A minor in art requires 15 semester hours in art courses with a grade-point average of 2.0 or higher. At least 12 of the 15 hours must be in advanced-level art studio courses taken at The University of Iowa (1K:49, IM:22, and 1 N: 17) and those numbered 100 and above. Course work applied toward a minor may not be used to satisfy the requirements for a major.

Bachelor of Arts in Art History

Because it is engaged 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 also is 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 the production of art 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 (total of 45-46 semester hours).

Both of these, in sequence, normally during the freshman or sophomore year:
1H:5 Western Art and Culture before 1400 3 s.h.
1H:6 Western Art and Culture after 1400 3 s.h.

*One of these:
1H:2 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.
1H: 16 Asian Art and Culture 3 s.h.

*Students who declared an art history major before the first day of fall semester 1996 and who completed IH: 1 or IH:4 may use that course to satisfy this requirement.

Four of these:
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 Nineteenth-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 1 H: 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 6 s.h.

No more than 50 semester hours of credit in art history and studio 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 undergraduate adviser to discuss the requirements they may fulfill with transfer courses.

Minor in Art History

A minor in art history requires 15 semester hours of courses in art history, with a grade-point average of at least 2.00. Twelve of the 15 semester hours must be in advanced-level courses at The University of Iowa (courses numbered 1 H:20 and above). It is strongly recommended that students planning a minor in art history take at least one of the four survey-level courses (1 H:2, 1 H:5, 1H:6, 1 H: 16). Course work applied toward a minor
may not be used to satisfy the requirements for a major.

**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 required for graduation 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 General Education Program requirements (see the College of Liberal Arts introductory section in the Catalog) and major requirements listed above for the B.A. in art, B.F.A. candidates must complete three courses in a studio area of concentration beyond the fundamental course, and at least the second semester of course work in each of two additional studio areas. Papemaking, calligraphy, and bookbinding courses may not be used as major or minor areas. Cross-referenced courses originating in the School of Art and Art History may not be counted as non-art electives.

Art education majors in the B.F.A. program must meet the same teacher licensure requirements as must students in the B.A. program.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan.

**B.A. in Art**

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

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

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

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

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

**B.A. in Art History**

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

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

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

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

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate based on the history of art, history of ideas, philosophy, and so forth, and should be written under the supervision of faculty in the student’s studio concentration area. Students may register for 3 semester hours of credit for the course of individual instruction that leads to the exhibition and related statement.

**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, and sculpture. The degree requires:

- a B.A. or B.F.A. in art equivalent to that offered at The University of Iowa (undergraduate deficiencies, if any, may be made up concurrently with, but are in addition to, graduate requirements);
- a minimum of 38 semester hours of graduate work, including at least 12 semester hours in a major studio subject, with a total of at least 21 semester hours in studio courses; 9 semester hours in the history and theory of art, excluding readings and directed studies; and up to 8 semester hours of courses outside art and art history;
- clearance for M.A. candidacy by faculty review; and
- studio and written theses.

One semester hour writing a technical or substantial thesis may be earned by registering for 1 A:302, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward the M.F.A. requirements.

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.

Students preparing to teach in both the studio and art history areas may complete an art history minor of 15 semester hours, including 1 H.200 History and Methods and one other seminar. This work is 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 writing a technical or substantial thesis may be earned by registering for 1A:304, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward M.F.A. requirements.

**Master of Arts in Art Education**

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 art, art history, or 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, chosen 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.

**Doctor of Philosophy in Art History**

The Ph.D. degree indicates breadth in the discipline of art history and expertise in a specialized area of research. Candidates are expected to contribute to the field of art history through 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 coursework 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 counted toward this requirement. Students are allowed only one semester of academic probation. The following course distribution beyond the M.A. is required.

- Two art history seminars (different instructors in different fields) 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.
- The art history courses and seminars taken for the degree must include semester-long post-B.A. courses in at least five of the following fields: African, 18th- and 19th-century American, ancient (to 300 A.D.), Asian, baroque, medieval (300-1500 A.D.), 18th- and 19th-century European, Renaissance, and 20th century. Students must earn an A or B in each of these courses.

The history and methods proseminar is taken during the first fall semester the student spends in residence. Credit for graduate seminars can be applied toward the five-field distribution requirement if the student has earned a grade of B or higher in an undergraduate-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.

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, which is in addition to the foreign language requirement for admission to the M.A. program, 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. Before graduation, M.A. candidates must complete either a written thesis, for which 3 semester hours of credit may be allowed, or a substantial research paper.

Additional art history courses (up to 6 semester hours of credit for dissertation research may be applied toward this requirement) 18-30 s.h.

Courses outside the School of Art and Art History 0-12 s.h.

Two semesters before completing the course requirements, students propose a major and a minor in consultation with a guidance committee consisting of the graduate adviser, the faculty mentor, and two members of the art history faculty. After the guidance committee recommends approval of the major and minor, the student, in consultation with the guidance committee, establishes a committee for the doctoral comprehensive examinations that includes four members of the art history faculty and one member from an outside discipline.

Upon the successful completion of the course requirements, a six-hour examination in the major area and a three-hour examination in the minor area are scheduled, followed by an oral examination. In consultation with the guidance committee, a second minor may be chosen from disciplines outside art history; for example, religion, history, literature, philosophy, or anthropology.

After successfully completing the examinations, the student, in consultation with the guidance committee, selects a dissertation committee that consists of five members—four from art history (including the student’s faculty mentor) and one from an outside field. The student presents a dissertation proposal to the dissertation committee, which recommends the proposal’s approval to the art history faculty. Once approved, the dissertation proposal is presented in a public forum to the faculty and scholarly community.

The completion of a written dissertation on a topic that constitutes an original scholarly contribution to the field and the successful 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 to The University of Iowa Graduate College as well as 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 admission decisions. Acceptance notification cannot be given over the phone by either the admissions office or the School of Art and Art History.

Applicants whose 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 throughout the world. Inquiries should be addressed to Director, 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 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 for the summer and fall terms, October 1 for the spring term.

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. They also must submit one of the following portfolios. (Portfolios will be retained by mail only if return postage is supplied by the applicant.)

- Drawing: eight slides or photos of drawings, 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, intermediate, metalsmithing and jewelry, design, or ceramics: 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 enclosed in a slide sheet and labeled with the name, portfolio medium, size, and approximate date of work; the top should be indicated. An inventory list with the same information should be included. Extreme care will be taken in handling all portfolios, but the school cannot be responsible for reimbursement in the event of loss or damage.

ART HISTORY-MA.

Undergraduate work of at least 18 semester hours in art history is recommended for applicants to the M.A. program in art history. Evidence of proficiency in at least one foreign language (usually French or German), satisfied by completion of the equivalent of two years of undergraduate-level courses, is required for admission. Although exceptions sometimes are made on the basis of the quality of undergraduate education, 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 paper that states their concept of the field and outlines their purpose in pursuing graduate studies, and three letters of recommendation that assess the applicant’s potential for graduate study. A term paper or undergraduate thesis that demonstrates the applicant’s ability to write in the field also should be submitted.

ART HISTORY-PH.D.

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 to 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 paper that states the applicant’s purpose in pursuing graduate studies and describes his or her concept of the specific area of concentration; and three letters of recommendation, including one from the applicant’s M.A. thesis director. Although exceptions may be made based on quality of prior education or other 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 other 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 completion with a grade of B or higher of the fourth semester of an undergraduate language, is required for admission.

Completed applications for the master’s or doctoral program and requests for financial aid must be submitted to the Graduate College by February 1.

Admission through Direct Entry

M.A. students in the history of art at The University of Iowa may apply to bypass the M.A. thesis or research paper and enter the Ph.D. program directly once they have met the M.A. requirements in breadth and language proficiency. In consultation with the graduate adviser and the head of art history, students may submit a letter of interest and a significant research paper to the art history faculty in order to be considered for direct entry.

This option is open only in exceptional cases, and students may apply for it only once. If the application fails, the student must complete the M.A. before again applying for admission to the Ph.D. program through regular art history admission procedures as detailed above.

ART EDUCATION

Applicants must submit to the School of Art and Art History a one-page paper that states their purpose and three letters of recommendation that assess their potential for graduate study. Applicants to the M.A. program in art education must submit a term paper or other example of ability to write in the field and a selection of slides or photographs of their creative work in two studio areas.

For admission to the Ph.D. in art education, 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.

**Fellowships, 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. This gives faculty members an opportunity to observe their performance and potential.

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

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

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

Information and application materials for graduate scholarships and fellowships are included in the admissions package. They are also available from the School of Art and Art History. Renewal or reappointment for fellowships and assistantships depends on adequate progress toward the degree (graduate students must accumulate at least 18 semester hours of graduate credit each calendar year and maintain a grade-point average above the required minimum) and satisfactory performance of assistantship duties.

Decisions on financial aid are generally made during the latter part of the spring semester for the following academic year. In most cases, applications and all relevant materials should be on file by March 1.

**Special Resources**

**Reference Collections**

The art library contains 95,000 volumes, an extensive microfilm and microfiche archive.

The school’s Office of Visual Materials contains 280,000 slides, 30,000 photographs, a videotape library, and a video/disc 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 and Pre-Columbian art, English and American silver, European and American prints, drawings and photographs, and Etruscan, Iranian, and contemporary American ceramics. As well as serving as a resource for research in a wide variety of art history areas, the museum offers a program of exhibitions, lectures, and recitals.

**Interdisciplinary Resources**

In the studio area, colloquia, 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 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 program hosts distinguished international Fellows who work with students and faculty on original research projects. In addition, PASALA offers scholarships and support for research in Africa students. The major asset of PASALA is the Stanford 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 papemaking mill; a typography studio; and video equipment.

**Courses**

**Art History**

**Primarily for Undergraduates**

**1H: 1 Concepts and Content Art and Culture 3 s.h.** Concepts that informed the making of particular works of art; historically specific contexts to which groups of artists responded. GE: fine arts or humanities.

**1H: 2 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.** Traditional arts of Africa, the Pacific, the Americas before European conquest. GE: cultural diversity or fine arts or humanities.

**1H:4 Masterpieces: Art and Cultural Paradigms 3 s.h.** Architecture, painting, sculpture in cultural context. GE: fine arts or humanities.

**1H:5 Western Art and Culture before 1400 3 s.h.** Art, in creators, culture and medieval periods. GE: fine arts or foreign civilization and culture or historical perspectives.

**1H:6 Western Art and Culture after 1400 3 s.h.** Art, artists, culture from Renaissance to present. GE: fine arts or foreign civilization and culture or historical perspectives.

**1H:10 Freshman and Sophomore Tutorial: Introduction to the History of Art 4 s.h.** Questions and methods are historical use to explore art; thematic, conceptual approach. GE: fine arts or humanities.

**1H:16 Asian Art and Culture 3 s.h.** India, China, Southeast Asia, Japan. GE: fine arts or foreign civilization and culture or historical perspectives. Same as 39:16.

**1H:20 Introduction to African Art 3 s.h.** Artistic traditions of sub-Saharan Africa; sculpture, painting, pottery, textiles, architecture, human adornment. GE: fine arts or foreign civilization and culture. Same as 141:30.

**1H:25 Introduction to Ancient Art 3 s.h.** Architecture of Mediterranean civilizations from Minoan times to age of Constantine. Prerequisite: 1H:5 or consent of instructor. Same as 142:26.

**1H:30 Introduction to East Asian Art 3 s.h.** History of visual arts of China, Korea; chronological and geographical approaches; emphasis on understanding the arts within cultures producing them. Prerequisite: 1H:16 or 39:16.
Art and Art History. Liberal Arts 89

Art History 1H

1H:40 Introduction to Medieval Art 3 s.h.
Art, architecture in Europe from 300 to 1400 A.D.

1H:47 Introduction to Renaissance Art 3 s.h.
Art, architecture in Europe from early Renaissance to 1600.

1H:53 Introduction to Baroque Art 3 s.h.
Art, architecture in Europe from 1600 to 1750.

1H:62 Introduction to Nineteenth Century Art 3 s.h.
Major European artists, works, movements, aesthetic theories from late 18th century to 1900; works in their aesthetic, cultural, intellectual, political contexts; boundaries, definitions of movements such as Neo-Classicism, Romanticism, Realism, Impressionism, Post Impressionism, Symbolism.

1H:63 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 actions; art’s relationship to culture.

1H:66 Introduction to American Art 3 s.h.
Architecture, painting, photography, sculpture from colonial times to present. GE: fine arts or humanities.

1H:99 Undergraduate Seminar in the History of Art 3 s.h.
Characteristic problems, methodological issues, critical thinking and writing. Consent of instructor required.

For Undergraduates and Graduates

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

IH: 142 The Medieval Manuscript Book 3 s.h.
The myth of Rome as embodied in its arts and architecture, as documents of ancient society and religion in Latin America. Prerequisite: IH: 1, IH:6, 1H:63, and IH:66; or consent of instructor.

IH: 167 American Visual Culture, 1830-1900 3 s.h.
American works and his impact on French Romantic art and culture during political, cultural upheaval and transition.

IH: 170 The City of Rome: Image and Ideology 3 s.h.
The art of Rome as embodied in its arts and architecture, Renaissance to Mussolini.

IH: 173 Themes in Baroque Art 3 s.h.
Current topics organized thematically rather than chronologically. May be repeated. Prerequisite: IH: 150 or consent of instructor.

IH: 175 Buildings and Society in Europe, 1500-1700 3 s.h.
Architecture from a sociological perspective.

IH: 175 Introduction to American Art 3 s.h.
Painting, sculpture in the age of Caravaggio, Bernini.

IH: 177 Flemish and Dutch Baroque Painting 3 s.h.
Painting in the age of Rubens and Rembrandt.

IH: 177 The City of Rome: Image and Ideology 3 s.h.
The art of Rome as embodied in its arts and architecture, Renaissance to Mussolini.

IH: 180 Realism, Impressionism, Post-Impressionism 3 s.h.
Painting, sculpture in Europe from late 18th to mid-19th century. Prerequisite: IH: 167 or consent of instructor.

IH: 182 Rococo to Realism 3 s.h.
Painting, sculpture in Europe from late 18th to mid-19th century. Prerequisite: IH: 167 or consent of instructor.

IH: 184 The Age of the Reformation 3 s.h.
Sixteenth-century German and Netherlandish art. Prerequisite: IH: 2 or IH:6 or consent of instructor.

IH: 186 Italian Sculpture: 13th-16th Centuries 3 s.h.
Development of central Italian sculpture from Pisano to Michelangelo. May be repeated. Prerequisite: IH: 67.

IH: 187 Italian Medieval Art 3 s.h.
Painting, sculpture, architecture, 1250 to 1400.

IH: 188 Italian Art in the Fifteenth Century 3 s.h.
Painting, sculpture, architecture, 1400 to 1525.

IH: 189 Italian Art in the Sixteenth Century 3 s.h.
Painting, sculpture, architecture, 1500 to 1600.

IH: 190 Themes in Renaissance Art 3 s.h.
Current topics organized thematically rather than chronologically. May be repeated. Prerequisite: IH: 150 or consent of instructor.

IH: 191 Classical Architecture: Theory/Practice 3 s.h.
Architectural design in the Italian Renaissance, Brnellesques to Palladio.

IH: 192 Buildings and Society in Europe, 1500-1700 3 s.h.
Architecture from a sociological perspective.

IH: 193 Italian Baroque Art 3 s.h.
Painting, sculpture in the age of Caravaggio, Bernini.

IH: 194 Flemish and Dutch Baroque Painting 3 s.h.
Painting in the age of Rubens and Rembrandt.

IH: 195 The City of Rome: Image and Ideology 3 s.h.
The art of Rome as embodied in its arts and architecture, Renaissance to Mussolini.

IH: 197 Themes in Baroque Art 3 s.h.
Current topics organized thematically rather than chronologically. May be repeated. Prerequisite: IH: 167 or consent of instructor.

IH: 199 Rococo to Realism 3 s.h.
Painting, sculpture in Europe from late 18th to mid-19th century. Prerequisite: IH: 167 or consent of instructor.

IH: 199 The City of Rome: Image and Ideology 3 s.h.
The art of Rome as embodied in its arts and architecture, Renaissance to Mussolini.

IH: 201 Introduction to Medieval Art 3 s.h.
Art, architecture in Europe from 300 to 1400 A.D.

IH: 202 Themes in African Art 3 s.h.
Current topics organized thematically rather than chronologically. May be repeated.

IH: 203 Art of the South Pacific 3 s.h.
Tradional arts of Polynesia, Melanesia, Micronesia.

IH: 204 American Indian Art 3 s.h.
Architecture, painting, sculpture, crafts, art of personal adornment of native peoples of North America. GE: cultural diversity.

IH: 205 Art of Pre-Columbian America 3 s.h.
Art, architecture of Mexico, Peru before Cortes.

IH: 207 Art of Western Africa 3 s.h.
Art of western Sudan, Guinea coast. Same as 129:107, 1H:107.

IH: 208 Art of Central Africa 3 s.h.
Art of equatorial forest, southern savannah. Same as 129:110, 1H:108.

IH: 210 Art of the Americas 3 s.h.
Architecture, painting, sculpture, crafts of personal adornment of native peoples of North America. GE: cultural diversity.

IH: 220 Architectural History. Liberal Arts 89
IH:171 European Art of the Early Twentieth Century 3 s.h.
Major artistic developments from 1900 to post-World War I reconstruction in the mid-1920s, organized by formal developments, platforms of influential movements, and artists’ responses to their roles in contemporary culture. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:172 Art and Politics in the Twentieth Century 3 s.h.
Relationships assumed between art and politics in this century; the arts’ attempts to critique culture and strategies in competing for social power. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:173 History and Theory of the Avant-Garde 3 s.h.
Critique of avant-garde’s philosophy and function, 19th-century sources to mid-20th-century crisis; historical design, social purpose, relationship to culture at large. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:174 World War I and the Arts 3 s.h.
The arts and their behavior during extreme crisis; engagement in political radicalism and revolutionary culture, response to crisis of modernism induced by the war. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:175 French Art, 1900-1938 3 s.h.
Tradition of modernism, its basis in institutions, in embedded theory, its impact on European and U.S. arts as a whole. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:176 German Art, 1900-1933 3 s.h.
Beginning of 19th-century to advent of national socialism; basis in nationalism and cultural ideology, its self-critique, its relationship to international European artistic community. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:177 Mid-Twentieth Century European and American Art 3 s.h.
Internationalization of the World War II-era arts; revised concepts of cultural politics and ensuing hegemony of formalism; marginalization of social agenda; impact of redescibed relations between Europe and the Americas. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:178 American Art of the 1950s 3 s.h.
Modernism embraced or rejected as an artistic environment; American art’s relation to European modernism; the crisis of modernism, artists’ confrontation of Possibility or impossibility of art. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:179 Twentieth-Century Event Arts 3 s.h.
Development of 20th-century performance art, environments, sound poetry, other avant-garde art actions. Prerequisite: IH:6, IH:65, IH:66, or consent of instructor.

IH:180 History of prints 3 s.h.
Printmaking as important art form, influence of caste of style and iconography from area to area, focus on Europe.

IH:185 History of photography 3 s.h.
From medium’s inception to the present; primarily in Europe and America; major photographers, artists, curators, historians. Prerequisite: IH:6.

IH:186 photographic Discourse 3 s.h.
History of issues raised for 20th-century historians, critics, photographers. Prerequisites: IH:6, IH:65, IH:66, or consent of instructor.

IH:190 Honors Research in Art History 3 s.h.
Research and preparation of thesis. Honors standing and consent of instructor required.

IH:192 Themes in American Art 3 s.h.
Current topics organized thematically rather than chronologically. May be repeated. Prerequisite: IH:6 or consent of instructor.

IH:193 Themes in Twentieth-Century Art 3 s.h.
Current topics organized thematically rather than chronologically. May be repeated. Prerequisites: IH:1, IH:6, IH:15, or consent of instructor.

IH:194 Readings in Art History 3 s.h.

IH:195 Theory and Criticism in Twentieth-Century Art Development and role, 1900 to World War II. 3 s.h.

IH:196 Theory and Criticism in Contemporary Art 3 s.h.
European, American criticism, theory; World War II to present. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:199 Topics in Art History 3 s.h.
May be repeated.

Primarily for Graduates

IH:200 History and Methods 3 s.h.
Critical thinking and research; readings in historical development of the discipline, from Renaissance to present; methodological paradigms and trends. Prerequisites: IH:6, and one course from IH:62 through IH:66, or consent of instructor.

IH:240 Proseminar in Medieval Art 3 s.h.
Monuments, historiography, methods of medieval art history. Prerequisite: IH:6, IH:176, or consent of instructor.

IH:245 Proseminar in Renaissance Art 3 s.h.
Monuments, historiography, methods. Prerequisite: IH:6, IH:176, or consent of instructor.

IH:263 Proseminar/Twentieth-Century Art 3 s.h.
Historiography, methods of 20th-century art historical studies. May be repeated. Consent of instructor required.

IH:285 Proseminar in American Art 3 s.h.
Historiography, problems in American art. Prerequisites: IH:6, IH:166, and IH:167, or consent of instructor.

IH:300 Directed Studies 3 s.h.
May be repeated. Consent of instructor required.

IH:302 M.A. Written Thesis 3 s.h.
May be repeated. Consent of instructor required.

IH:310 Seminar problems in African Art 3 s.h.
May be repeated. Same as 192:225, 141:202.

IH:316 Seminar Problems in Asian Art 3 s.h.
Current issues. May be repeated. Same as 39:255.

IH:326 Seminar Problems in Ancient Art 3 s.h.
May be repeated. same as 142:20.

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:395 seminar: Problems in Nineteenth-Century Art 3 s.h.
May be repeated.

IH:396 Seminar: Twentieth-Century Art 3 s.h.
Major issues, methodologies.

IH:397 Seminar: Problems in American Art 3 s.h.
May be repeated.

IH:370 Seminar: Issues in Art History 3 s.h.
Art-historical inquiry spanning temporal or geographic limits.

IH:400 Ph.D. Readings 3 s.h.

IH:402 Ph.D. Thesis 3 s.h.

IH:405 Ph.D. seminar 3 s.h.
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. 1A:3 Basic Drawing and 1A:4 Basic Design are prerequisites for all studio courses.

Fundamentals

1A:1 Colloquium 1 s.h.
Problems in visual arts. Offered spring semesters. Open only to majors.

1A:3 Basic Drawing 2 s.h.
Two-dimensional visual language, media, space, form, color. Open only to majors.

1A:4 Basic Design 2 s.h.
Two and three-dimensional concepts and their relations; working with basic drawing instruments. Open only to majors or to others with consent of instructor.

1A:200 Elements of Art 3 s.h.
Drawing, composition, selected reading. Open only to studio nonmajors. GE: fine arts.

1A:202 Elements of Art 3 s.h.
Continuation of 1A:1. emphasis on color. Open only to studio nonmajors. Prerequisite: 1A:1.

1B:1 Individual Instruction in Elements of Art arr.

Ceramics

1A:3 Basic Drawing and 1A:4 Basic Design are prerequisites for all ceramics courses.

IC:60 Ceramics I 3 s.h.
Basic building techniques. GE: fine arts.

IC:61 Ceramics II 3 s.h.
Basic wedging 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. Offered fall semesters. Consent of instructor required. Prerequisites: IC:60 and IC:61.

IC:171 Ceramics IV 3 s.h.
Advanced individual projects. Offered spring semesters. Consent of instructor required. Prerequisite: IC:170.

IC: 172 Ceramic Materials and Effects 3 s.h.
Empirical, practical methods of glaze and body formulation; effects of various types of kilns and firing atmospheres on glazed materials, clay bodies. Offered alternate fall semesters as Kiln Construction. Consent of instructor required. Prerequisite: IC:170 or equivalent.

IC: 174 Kiln construction 3 s.h.
Kiln firing, design, construction methods. Offered alternate fall semesters as Ceramic Materials and Effects. Consent of instructor required. Prerequisite: IC:170 or equivalent.

IC: 270 Individual Instruction in Ceramics 3 s.h.
Knowledge of clay and glaze computation, ability to fire kilns, and consent of instructor required.

IC:275 Ceramics Workshop 3 s.h.
Advanced ceramic studio; critique of student work; field trips. Consent of instructor required. Prerequisite: 1 C: 171 or equivalent.

Design

1A:3 Basic Drawing and 1A:4 Basic Design are prerequisites for all design courses.

ID:21 Problems in Design I: Form and Structure 3 s.h.
Materials, their formal and structural possibilities. Offered fall semesters. Prerequisite: 1A:4.

ID:22 Problems in Design II: Form and Function 3 s.h.
Products and how they are designed; modeling, graphic skills necessary to basic project development. Offered spring semesters. Prerequisite: 1A:4.

ID:28 Graphic Design I 3 s.h.
Basic principles, techniques, and applications of graphic design, typography, composition, visual perception, creative, problem-solving aspects of graphic design. Consent of instructor required. Prerequisite: 1A:4. Same as 108:28.

ID:110 Perspective and Shadow 3 s.h.
Theories of perspective, application of their basic principles to one- two- or three-point perspective scale drawings based on analytical specifications; principles of light, shadow; reflecting images. Offered summer sessions.
ID:124 color Theory 3 s.h. 
Exploration of color perception; practical application of basic elements of theories of color. Prerequisite: IA:4, ID:29 recommended.

ID: 125 Typogaphy 3 s.h. 
Principles and history; design with type; functional, aesthetic dimensions of typography. Consent of instructor required. Prerequisites: IA:4, 1D:28, and ID:133. Same as 108:125.

ID: 128 Computer Graphic Design 3 s.h. 
Computation, manipulation, organization of image and type using Macintosh computer platform as a creative tool for graphic design; nature, uses, limitations of digital technology. Prerequisites: IA:4, and ID:28-or consent of instructor.

ID: 130 Design Seminar 1 s.h. 
Current issues; planning of a public lecture series.

ID: 133 Graphic 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: 137 Environmental Design I 3 s.h. 
Work in architectural, industrial design; human and geographical environmental Factors. Offered fall semesters of odd years. 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 space to its architecture, environment, human element; color, materials, furnishings, lighting; projects. Offered spring semesters. Consent of instructor required. Prerequisites: ID:21 and 1 D:22.

ID: 145 Industrial Design I 3 s.h. 
Design related to human factors, methods of manufacture, marketing. Offered fall semesters of even years. Consent of instructor required. Prerequisites: ID:21 and ID:22.

ID:255 Graphic Design Workshop arr. 
Complex problems in graphic design; planning development, organization of integrated design programs. Consent of instructor required. Prerequisites: ID:28, ID:125, and ID:133.

ID:28 Environmental Design II 3 s.h. 
Continuation of ID: 137, which is prerequisite. May be repeated. Consent of instructor required.

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, which is prerequisite. May be repeated. Offered fall semesters of even years. Consent of instructor required.

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. 
Graduate standing in design and consent of instructor required.

Drawing

IA:3 Basic Drawing and IA:4 Basic Design are prerequisites for all drawing courses.

*All B.F.A students in drawing and painting must take 1F: 106.

1F:7 Life Drawing I (Observational drawing; figurative form is its spatial entity; drawing in varied media) 3 s.h.

1F:101 The Media of Drawing 3 s.h. 
Varied drawing media; development of personal drawing idiom. Consent of instructor required. Prerequisite: IF:7 or equivalent.

1F: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.

*1F:106 Undergraduate Seminar in Drawing and Painting 3 s.h. 
Current topics, issues, and professional skills, interdisciplinary concerns, education and career goals. Offered fall semesters.

1F:109 life Drawing III 4 s.h. 
Continuation of IF: 105; longer hours with model, setup.

Life Drawing IV 3 s.h. 
Observational drawing; figurative form is its spatial entity; drawing in varied media. Consent of instructor required. Prerequisite: IF:7 or equivalent.

Painting

IA:3 Basic Drawing and IA:4 Basic Design are prerequisites for all painting courses.

*All graduate majors in painting or drawing must take 1F:208 each semester.

IK:9 Painting I (Emphasis on traditional painting theory and development of pictorial ideas and skills, 5 hour meeting, 3 hour individual instruction) 3 s.h.

IK:10 Painting II 3 s.h. 
Materials, techniques, development of a personal painting language through observation and imagination. Prerequisite: IK:9.

IK:46 Intermediate Painting 3 s.h. 
Continued discussion of personal painting language developed through contemporary issues. May be repeated. Prerequisites: IK:9 and IK:10, or equivalents.

IK:49 Advanced Painting 3 s.h. 
Individual projects as they and the realization of a personal vision. May be repeated. Prerequisite: IK:46 or equivalent.

IK:111 Watercolor Painting 3 s.h. 
Prerequisites: IK:9 and IK: 10, or equivalents.

1K:205 Graduate Painting 3 s.h. 
Development of personal direction; individual, group critiques. Consent of instructor required. Prerequisite: IK:49 or equivalent.

1K:206 Graduate Painting: Topics 3 s.h. 
Individual painting projects in desired medium; topics vary. Corequisite: IK:206.

1K:207 Graduate Drawing and Painting Workshop 3 s.h. 

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 arr. 
Graduate standing and consent of instructor required.

Photography

IA:3 Basic Drawing and IA:4 Basic Design are prerequisites for all photography courses.

1L:34 Beginning Photography 3 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; development of personal vision. Prerequisite: IL:101.

1L: 125 Color Photography 3 s.h. 
Basic color printing procedures. Prerequisite: 1L:101.

1L 129 Materials and Techniques 3 s.h. 
Concepts and techniques, from reading contemporary topics to understanding and applying nontraditional photographic processes. Consent of instructor required. Prerequisite: IL:101.

1L:134 Silkscreen 3 s.h. 

1L:335 Offset Productions Workshop 3 s.h. 
Graphic arts techniques for production of postcards, brochures, visual books on a commercial offset press. Consent of instructor required. Same as 108:135.

1L:35 Digital Imaging 3 s.h. 
Digital imaging with paint, draw, photo, layout applications. Consent of instructor required.

1L:165 4 x 5 Camera Lighting 3 s.h. 
How to use a 4 x 5 camera to correct perspective, depth of field; large format printing, negative processes.

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

IA:3 Basic Drawing and IA:4 Basic Design are prerequisites for all printmaking courses.

1M:21 Undergraduate Intaglio and Relief I 3 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. Prerequisite: IM:21 or equivalent.

1M:31 Undergraduate Lithography 3 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: IF:7 or equivalent.

1M:35 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: IF:7 or equivalent.

1M:39 Intaglio and Relief I 3 s.h. 
Concepts, techniques. Renaissance and contemporary ideas, methods; emphasis on metal plate printing, including etching, drypoint, engraving, softground, aquatint.

1M:37 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. Prerequisite: IM:21 or equivalent.

1M:31 Undergraduate Lithography 3 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: IF:7 or equivalent.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP:000</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>IP:134</td>
<td>Scenic Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:110</td>
<td>Papermaking</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:120</td>
<td>Advanced Papermaking</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:150</td>
<td>Foil Stamping I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:152</td>
<td>Foil Stamping II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:170</td>
<td>Monotype</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:172</td>
<td>Monoprint</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:180</td>
<td>Special Workshop in Printmaking</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:211</td>
<td>Graduate Print Workshops</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:223</td>
<td>Graduate Intaglio and Relief</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:224</td>
<td>Graduate Lithography Workshop</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:250</td>
<td>Individual Instruction in Printmaking</td>
<td>arr.</td>
</tr>
<tr>
<td>IP:500</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>IP:134</td>
<td>Scenic Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:110</td>
<td>Papermaking</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:120</td>
<td>Advanced Papermaking</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:150</td>
<td>Foil Stamping I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:152</td>
<td>Foil Stamping II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:170</td>
<td>Monotype</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:172</td>
<td>Monoprint</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:180</td>
<td>Special Workshop in Printmaking</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:211</td>
<td>Graduate Print Workshops</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:223</td>
<td>Graduate Intaglio and Relief</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:224</td>
<td>Graduate Lithography Workshop</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>IM:250</td>
<td>Individual Instruction in Printmaking</td>
<td>arr.</td>
</tr>
</tbody>
</table>

**Sculpture**

**1A:3 Basic Painting and 1A:4 Basic Design** are prerequisites for all sculpture courses.

**1N:15 Undergraduate Sculpture I**

- 3 s.h.
- Basic sculptural concepts; processes; emphasis on developing personal ideas, acquiring basic skills and knowledge of materials; spatial, conceptual, technical issues. GE: fine arts.

**1N:16 Undergraduate Sculpture II**

- 3 s.h.
- Continuation of 1N:15; form, materials and processes, expanding concept development; contemporary sculptural forms, 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, formats; individualized instruction, development of critical thinking. Prerequisite: 1N: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:260 Individual Instruction in Sculpture**

**1N:261 Graduate Sculpture I**

- 3 s.h.
- Study of graduate students; emphasis on gaining a more profound critical and historical perspective of student's work and work of peers. Consent of instructor required.

**1N:264 Graduate Sculpture Workshop**

- 3 s.h.
- Seminar for graduate students and nonsculpture graduate students; emphasis on developing an understanding and an ability to read sculpture. Credits vary. Offered fall semesters only. Consent of instructor required.

**1N:265 Graduate Sculpture in Cast Metal**

- 3 s.h.
- Advanced foundry for graduate sculptors, nonsculpture graduate students, known, experimental casting techniques; conceptual metaphorical issues explored beyond process and technique. Consent of instructor required.

**Interdepartmental Courses**

- **IP:100 Cooperative Education Internship** | 0 s.h. |
- **IP:134 Scenic Design** | 3 s.h. |
- **IM:110 Papermaking** | 3 s.h. |
- **IM:120 Advanced Papermaking** | 3 s.h. |
- **IM:150 Foil Stamping I** | 3 s.h. |
- **IM:152 Foil Stamping II** | 3 s.h. |
- **IM:170 Monotype** | 3 s.h. |
- **IM:172 Monoprint** | 3 s.h. |
- **IM:180 Special Workshop in Printmaking** | 3 s.h. |
- **IM:211 Graduate Print Workshops** | 3 s.h. |
- **IM:223 Graduate Intaglio and Relief** | 3 s.h. |
- **IM:224 Graduate Lithography Workshop** | 3 s.h. |
- **IM:250 Individual Instruction in Printmaking** | arr. |

**Ín: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:260 Individual Instruction in Sculpture**

**1N:261 Graduate Sculpture I**

- 3 s.h.
- Study of graduate students; emphasis on gaining a more profound critical and historical perspective of student's work and work of peers. Consent of instructor required.

**1N:264 Graduate Sculpture Workshop**

- 3 s.h.
- Seminar for graduate students and nonsculpture graduate students; emphasis on developing an understanding and an ability to read sculpture. Credits vary. Offered fall semesters only. Consent of instructor required.

**1N:265 Graduate Sculpture in Cast Metal**

- 3 s.h.
- Advanced foundry for graduate sculptors, nonsculpture graduate students, known, experimental casting techniques; conceptual metaphorical issues explored beyond process and technique. Consent of instructor required.
B.A. in Asian Languages and Literature (Chinese, Hindi, Japanese, Sanskrit)

 Majors are required to complete advanced courses as follows. Half of the semester hours in advanced course work must be earned at The University of Iowa.

STUDENTS OF CHINESE

39:10-11 Second-Year Chinese: First-Second Semester 12 s.h.
39:105-106 Third-Year Chinese: First-Second Semester 12 s.h.
39:141 Chinese Literature: Poetry 3 s.h.
39:142 Chinese Literature: Prose 3 s.h.
39:180 Modern Chinese Writers 3 s.h.

STUDENTS OF HINDI

39:105-106 Third-Year Hindi: First-Second Semester 12 s.h.
39:136 Indian Literature 3 s.h.

*Students may substitute 6 semester hours of 100-level courses in South Asian studies, with the approval of their major adviser.

STUDENTS OF JAPANESE

39J:141 Traditional Japanese Literature in Translation 3 s.h.
39J:142 Modern Japanese Fiction in Translation 3 s.h.

Additional course work (6 s.h.) chosen from any advanced course in Japanese literature, pedagogy, or linguistics taught by faculty in the department; the following are representative.

39J:143 Topics in Japanese Literature in Translation 3 s.h.

STUDENTS OF SANSKRIT

39J:105-106 Third-Year Sanskrit: First-Second Semester 12 s.h.
39J:136 Indian Literature 3 s.h.
39J:163 Indian Religious Texts 3 s.h.

*Students may substitute 6 semester hours of 100-level courses in South Asian studies, with the approval of their major adviser.

May include 1-3 semester hours of independent study.

STUDENTS OF JAPAN

39J:105-106 Third-Year Japanese: Conversation I-II 6 s.h.
39J:107-108 Third-Year Japanese: Reading & Writing I-II 6 s.h.
39J:141 Traditional Japanese Literature in Translation 3 s.h.
39J:142 Modern Japanese Fiction in Translation 3 s.h.

Additional course work (6 s.h.) chosen from any advanced course in Japanese literature, pedagogy, or linguistics taught by faculty in the department; the following are representative.

39J:143 Topics in Japanese Literature in Translation 3 s.h.

STUDENTS OF SANSKRIT

39J:105-106 Third-Year Sanskrit: First-Second Semester 12 s.h.
39J:136 Indian Literature 3 s.h.
39J:163 Indian Religious Texts 3 s.h.

*B.A. in Asian Studies (China, Japan, or South Asia)

Students majoring in Asian studies must complete the following courses on Asia. Half of the semester hours in courses on Asia must be earned at The University of Iowa.

China

One of these, depending on the area whose language the student is studying:
39:153 Traditional China 3 s.h.
39:154 Modern China: 1800 to Present 3 s.h.
Other courses on East Asia, numbered 100 or above 15 s.h.

Japan

39:172 Early Modern Japan 3 s.h.
or
39:173 Modern Japan to 1945 3 s.h.
Other courses on East Asia, numbered 100 or above 21 s.h.

South Asia

REQUIRED
or
39J:33-34 Second-Year Hindi: First-Second Semesters 6 s.h.
39:176 South Asia Social Science History 3 s.h.

One course in a related area, discipline or method emphasizing social science (e.g., anthropology, Third World development, economics, geography, linguistics, political science, sociology or women's studies)

In addition, students must earn 18 semester hours by taking courses chosen from the following subject area listings.

Anthropology
113:105 Introduction to South Asia 3 s.h.
113:147 Special Topics: Anthropology 2-3 s.h.

Art
IH:113 Art of Islam 3 s.h.
IH:114 Buddhist and Hindu Iconography 2-3 s.h.
IH:115 (39:181) Art of India 3 s.h.
IH:118 (39:168) Painting of India 3 s.h.

Asian Languages and literature
39:136 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.
39:216 Individual Sanskrit for Advanced Students arr.
39:217 Individual Hindi for Advanced Students arr.

History
16W:181 (39:150) Contemporary Asia News Colloquium 2 s.h.
16W:194 (39:134) Imperialism and Modern India 3 s.h.

Religion
32:168 (39:169) Karma, Rebirth, and Human Destiny 3 s.h.
32:171 (39:163) Indian Religious Texts 3 s.h.
32:173 Readings in Sanskrit Texts 3 s.h.
32:180 (39:162) Buddhist Sacred Texts 3 s.h.
32:191 (39:167) Religion in India 3 s.h.

Independent Study

Others
To be arranged in consultation with student’s adviser; particularly appropriate for students engaged in study abroad.

RECOMMENDED
The department strongly recommends that students meet some of their General Education Program requirements by taking the following.
16:7 Civilizations of Asia: South Asia 3-4 s.h.
39:17 Asian Humanities: India 3 s.h.

Advanced undergraduates are urged to register for 39:250 South Asian Research Seminar each semester they are in residence.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A. in Asian languages and literature

Before the third semester begins: for Chinese and Japanese majors, language work begun (Hindi and Sanskrit majors may begin language work their sophomore year) and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least first-year language competency and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least second-year language competency and at least three-quarters of the semester hours required for graduation
Before the third semester begins: at least one-third-year, first-semester language competency and one additional course in the major (two additional courses in the major for Japanese).

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

B.A. in Asian Studies

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

Before the fifth semester begins: at least one-half of the semester hours required for graduation.

Before the seventh semester begins: at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: at least one additional course in the major (two remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate).

Honors

Students with a grade-point average of 3.20 or higher are encouraged to enroll in the University Honors Program. With consent of the department chair and a faculty sponsor (an Asian specialist from any department), students register for 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 at least 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.

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 5 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.

Minor in Asian Studies

A minor in Asian studies requires a minimum of 15 semester hours with a grade-point average of at least 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.

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 permits undergraduate students to tailor the program 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).

Teaching Licensure in Chinese and Japanese

Chinese and Japanese majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major, or the equivalent, plus designated pedagogy courses in the Department of Asian Languages and Literature. In addition, students must be admitted to the College of Education’s foreign language teacher education program. Several courses in the College of Education are required, as is one semester of student teaching, taken in the senior year. Contact the College of Education’s 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 Program

The graduate Program in Asian civilizations prepares students for doctoral study in a variety of disciplines. It is also of interest to students with nonacademic career plans for whom graduate-level work in an Asian language and culture would be useful. Students in professional programs are encouraged to consider working 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 their adviser and in accordance with guidelines for specializations within the program.

All students must maintain a grade-point average of 3.00 or higher. Detailed information on degree requirements is sent to all applicants. By the end of the final semester in residence, students are expected to demonstrate, either by departmental examination or the successful completion of courses at the appropriate level, advanced competence in Chinese, Japanese, Hindi, or Sanskrit, defined generally as corresponding to the fourth-year level of language course work in Chinese or Japanese and the third-year level in Hindi and Sanskrit.

Admission

Applicants for graduate admission must meet the general admission requirements of the Graduate College, except that a grade-point average of at least 2.75 is required for conditional admission, and at least 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 July 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 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...
provided by the Stanley-University of Iowa Foundation Support Organization. Scholarships consist of a cash grant for use in an approved summer program. Detailed information on approved programs is available in the department.

Undergraduate students of Asian languages have available support from two special sources. Presidential Scholarships for Study Abroad in the amount of $3,000 may be used to help underwrite the costs of study abroad. A limited number of scholarships are available each year, and proposals for study in non-Western European countries are especially encouraged.

Stanley Scholarships for International Research and Study are available from the Center for International and Comparative Studies (CICS) support summer study projects and activities away from The University of Iowa campus. Consult the CICS office for more information.

Graduate students who combine work in modern Asian languages at an advanced level with interdisciplinary or professional study are encouraged to apply for Graduate Fellowships in Foreign Language Study awarded by the Center for International and Comparative Studies. The fellowships offer academic year and summer stipends as well as full or partial tuition support. They may be held only by American citizens.

Special Programs and Activities

Summer and Study Abroad Programs

The department strongly urges its students to seek opportunities for summer language study and study abroad in order to accelerate the process of language acquisition, and many of the financial aid programs described above are designed to help make such learning experiences possible. Both the department and the Office of International Education and Services maintain extensive files of information about study abroad opportunities.

The University’s memberships in the American Institute of Indian Studies and the China Cooperative Language and Study Programs consortium facilitate study abroad for Iowa students. The China programs provide opportunities to study language and culture in universities in Beijing, Shanghai, and Nanjing. Of special note is the Chinese Business and Language House, which offers both intensive Japanese language practice and 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

39:00 Cooperative Education Internship 0 s.h.

CHINESE

39:8 First-Year Chinese First Semester 3 s.h. Grammar, basic vocabulary; elementary readings. GE: foreign language. Offered fall semesters.


39:10 Second-Year Chinese First Semester 3 s.h. Continuation of 39:9, which is prerequisite; focus on all skills. Offered fall semesters.

39:11 Second-Year Chinese Second Semester 3 s.h. Continuation of 39:10, which is prerequisite. Offered spring semesters.

39:105 Third-Year Chinese First Semester 3 s.h. Writing II 3 s.h. Reading of advanced modern Chinese texts, speaking, writing. Offered fall semesters. Prerequisite: 39:11 or 39:118.

39:106 Third-Year Chinese Second Semester 3 s.h. Continuation of 39:105, which is prerequisite. Offered spring semesters.

39:108 Classical Chinese: First Semester 3 s.h. Late Zhou period; readings from Zhanguoce, Mengzi, Zhuangzi; focus on grammatical analysis, exact translation. Offered fall semesters. Prerequisite: 39:1.


39:128 Fourth-Year Chinese: First Semester 3 s.h. Proficiency through oral and written discussions of modern texts. Offered fall semesters. Prerequisite: 39:106 or equivalent.

39:129 Fourth-Year Chinese Second Semester 3 s.h. Offered spring semesters. Prerequisite: 39:128.

39:130 Business Chinese 3 s.h. Skill development in communicating with Chinese counterparts; focus on oral bargaining, authentic materials (invoices, price lists, business letters, etc.). Offered spring semesters. Prerequisite: 39:11.

HINDI

39:31 First-Year Hindi: First Semester 3 s.h. Writing and speaking. GE: foreign language. Offered fall semesters.

39:32 First-Year Hindi: Second Semester 3 s.h. Continuation of 39:31, which is prerequisite. GE: foreign language. Offered spring semesters.


39:34 Second-Year Hindi: Second Semester 4 s.h. Continuation of 39:33, which is prerequisite. Offered spring semesters. Prerequisite: 39:33.

JAPANESE


39:10 Second-Year Japanese First Semester 5 s.h. Continuation of 39:9, which is prerequisite. GE: foreign language. Offered fall semesters.

39:11 Second-Year Japanese Second Semester 5 s.h. Continuation of 39:10, which is prerequisite. Offered spring semesters.

39:105 Third-Year Japanese: Conversation I 3 s.h. Modern Japanese; focus on speaking, listening. Offered fall semesters. Prerequisite: 39:11.

39:106 Third-Year Japanese Conversation II 3 s.h. Continuation of 39:105, which is prerequisite. Offered spring semesters.

39:107 Third-Year Japanese: Reading and Writing I 3 s.h. Modern Japanese; focus on reading, writing. Offered fall semesters. Prerequisite: 39:11.

39:108 Third-Year Japanese: Reading and Writing II 3 s.h. Continuation of 39:107, which is prerequisite. Offered spring semesters.


39:120 Classical Japanese: Second Semester 3 s.h. Continuation of 39:119, which is prerequisite. Offered spring semesters.

39:121 Fourth-Year Japanese First Semester 3 s.h. Modern Japanese; emphasis on communication skills. Offered fall semesters. Prerequisite: 39:106.

39:122 Fourth-Year Japanese Second Semester 3 s.h. Continuation of 39:121, which is prerequisite. Offered spring semesters.

SANSKRIT

39:21 First-Year SANSKRIT First Semester 4 s.h. Grammar, basic vocabulary; elementary readings. GE: foreign language. Offered fall semesters.

96 Liberal Arts . Asian Languages and Literature

39:21 Second-Year Sanskrit: First Semester 3 s.h.
Readings in epic and puranic texts. GE: foreign language. Offered fall semesters. Prerequisite: 39:22 or consent of instructor.

39:24 Second-Year Sanskrit: Second Semester 3 s.h.
The Epic and related religious texts. GE: foreign language. Offered spring semester. Prerequisite: 39:23 or consent of instructor.

OTHER LANGUAGES

39:40 First-Year Korean: First Semester 4 s.h.
Modern Korean; reading, writing, speaking skills. Continuation of 39:42, which is prerequisite.

39:41 First-Year Korean: Second Semester 4 s.h.
Continuation of 39:40, which is prerequisite. Offered spring semesters.

39:42 Second-Year Korean: First Semester 4 s.h.
Continuation of 39:41, which is prerequisite; conversation and readings in intermediate Korean language. Korean culture.

39:43 Second-Year Korean: Second Semester 4 s.h.
Continuation of 39:42, which is prerequisite.

39:45 First-Year Hebrew First Semester 3 s.h.
Modern Hebrew; reading, writing, speaking skills.

39:46 First-Year Hebrew, Second Semester 3 s.h.
Continuation of 39:45, which is prerequisite.

Graduate Language

CHINESE

39:120 Advanced First-Year Chinese: First Semester 6 s.h.
Previous knowledge of Chinese used as foundation for study of the language; for students with aural/oral fluency in Mandarin Chinese or non-Mandarin dialect. GE: foreign language. Offered fall semesters.

39:121 Advanced First-Year Chinese: Second Semester 6 s.h.
Continuation of 39:100, which is prerequisite; GE: foreign language. Offered spring semesters. Consent of instructor required.

39:135 Beginning Chinese for Graduate Students I 6 s.h.
See 39:9. Offered fall semesters.

39:116 Beginning Chinese for Graduate Students II 6 s.h.

39:117 Beginning Chinese for Graduate Students III 6 s.h.
See 39:10 or 39:116. Offered fall semesters. Prerequisite: 39:110 or 39:111.

39:118 Beginning Chinese for Graduate Students IV 6 s.h.
See 39:11. Offered spring semesters. Prerequisite: 39:110 or 39:111.

39:139 Chinese Historical Phonology 3 s.h.
Phonology of Mandarin, other major Chinese dialects; reconstruction of Middle and Old Chinese; possible relationships between Chinese, other language families. Conducted in English. Same as 101:139.

39:140 Introduction to Chinese linguistics 3 s.h.
Aspects of modern Chinese linguistics, such as Chinese phonology, syntax, pedagogical grammar, history of the Chinese language. Conducted in English. Same as 103:144.

39:213 Advanced Classical Chinese 5 s.h.
Readings from Zizhuan, Gongyang, other texts of early classical period. Prerequisite: 39:109.

39:220 Literary Chinese I 3 s.h.
Readings from literary and historical texts of Han and Wei-Jin periods. Prerequisite: 39:109 or consent of instructor.

39:239 Seminar in Chinese Linguistics: Historical Phonology 3 s.h.
Topics in Chinese historical phonology chosen in accordance with instructor's and students' interests.

39:123 Beginning Hindi for Graduate Students I 5 s.h.
Writing and speaking. Offered fall semesters.

39:124 Beginning Hindi for Graduate Students II 5 s.h.
Continuation of 39:123, which is prerequisite. Offered spring semesters.

39:125 Intermediate Hindi for Graduate Students III 4 s.h.
Emphasis on conversation, reading of folktales and modern short stories. Offered fall semesters. Prerequisite: 39:123 or 39:124.

39:127 Intermediate Hindi for Graduate Students IV 4 s.h.
Continuation of 39:126, which is prerequisite. Offered spring semesters.

39:134 Third-Year Hindi: First Semester 3 s.h.
Advanced level Hindi texts; speaking, writing. Offered fall semesters. Prerequisite: 39:124 or 39:127.

39:135 Third-Year Hindi: Second Semester 3 s.h.
Continuation of 39:124, which is prerequisite. Offered spring semesters.

JAPANESE

39:140 Beginning Japanese for Graduate Students I 5 s.h.
See 39:9. Offered fall semesters.

39:16 Beginning Japanese for Graduate Students II 5 s.h.

39:117 Beginning Japanese for Graduate Students III 5 s.h.

39:118 Beginning Japanese for Graduate Students IV 5 s.h.
See 39:11. Offered spring semesters. Prerequisite: 39:116 or 39:117.

39:158 East-West Literary Relations 3 s.h.
Topics in cross-cultural study based in Asian/Euro-American literature and film studies. Same as 48:158.

Same as 32:183.

39:173 Alternate Universes: Readings in Hindu Mythology 3 s.h.
Same as 32:184.

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 48:182.

39:184 Religious Themes in Japanese Literature 3 s.h.
Same as 32:184.

39:192 East Meets West: A Cross-Cultural Course 3 s.h.
Overview of cross-cultural perceptions in modern period based on films, literary and philosophical texts from East and West. Same as 48:192.

39:219 Early Chinese Vernacular Texts 3 s.h.
Readings in texts thought to represent vernacular Chinese of various periods; late Han and Three Kingdoms Buddhist translations, various Dunhuang documents. Prerequisites: 39:109 or consent of instructor.

39:220 Seminar in Chinese Fiction 3 s.h.
Novels, novelettes; 16th to 18th centuries (Ming and Qing periods). Prerequisite: ability to read original texts.

39:221 Seminar in Chinese Literature 3 s.h.
Prerequisites: two years of modern Chinese and one year of classical Chinese, or equivalents. Same as 48:241.

39:222 Seminar: Ming Fiction 3 s.h.
Reading of seven Ming dynasty novels in original texts, for individual presentation and group discussion. Near-native reading speed in Chinese required.

39:234 Seminar: Qing Fiction 3 s.h.
Reading of Qing dynasty novels in original texts, for individual presentation and group discussion. Near-native reading speed in Chinese required.

39:245 seminar in Japanese literature 3 s.h.
May be repeated. Consent of instructor required. Prerequisite: three years of Japanese.

39:251 Readings in Modern Japanese 3 s.h.
Readings in modern Japanese. Consent of instructor required.

39:252 Readings in Japanese Literature Texts 3 s.h.
Reading, translation of classical or modern works. Consent of instructor required. Prerequisite: 39:219 or 39:251.

39:285 Vernacular Narrative, 13th-17th Centuries 3 s.h.
Same as 48:285.

Civilization

Instruction is in English.

39:16 Asian Art and Culture 3 s.h.
GE: fine arts or foreign civilization and culture or historical perspectives. Same as 4H: 16.
Asian Languages and Literature . Liberal Arts 97

39:18 Asian Humanities: India 3 s.h.
Introduction to four thousand years of South Asian civilization. GE: foreign civilization and culture or humanities. Same as 32:8.

39:19 Asian Humanities: China 3 s.h.
Literary and philosophical texts of China. GE: foreign civilization and culture or humanities. Same as 32:9.

39:20 Asian Humanities: Japan 3 s.h.
Literary texts, related arts of premodern Japan. GE: foreign civilization and culture or humanities.

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 the cultures that produce them. Prerequisite: 39:16 or 16:295. GE: foreign civilization and culture. Same as 32:169.

39:55 Civilizations of Asia Premodern China within the cultures that produce them. Prerequisite: 39:16 or 16:295. GE: foreign civilization and culture or historical perspectives. Same as 16:5.

39:56 Civilizations of Asia: Modern China and Japan 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 16:6.

39:57 Civilizations of Asia: South Asia 3-4 s.h.
Pre-modern and modern topics in history, art, religion, philosophy, politics, and culture of India, nearby states. GE: foreign civilization and culture or historical perspectives. Same as 16:7.

39:64 Living Religions of the East 3 s.h.
GE: foreign civilization and culture or historical perspectives. Same as 32:4.

39:85 Zen and Japanese Culture 3 s.h.
Relationship between Zen and Japanese culture, especially in medieval and early modern periods of Japanese history: painting, architecture, poetry, drama, gardens, tea culture, related arts. Same as 32:85.

39:86 New Religions in Japan 3 s.h.
Religious groups that emerged in Japan during 19th and 20th centuries. Same as 32:86.

39:120 Chinese Painting I 3 s.h.
Same as IH:120.

39:121 Chinese Painting II 3 s.h.
Same as IH:121.

39:123 Japanese Painting 3 s.h.
Same as IH:123.

39:125 Japanese Society and Culture 3 s.h.
GE: foreign civilization and culture. Same as 113:125.

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 113:126.

39:131 Themes in Asian Art History 3 s.h.
Prerequisite: 39:16 or IH:16 or equivalent or consent of instructor. Same as IH:124.

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 16W:183.

39:134 Imperialism and Modern India 3 s.h.
GE: foreign civilization and culture. Same as 16W:194.

39:140 Topics in Asian Cinema 3 s.h.
Contemporary films from mainland China and Taiwan. Same as 39F:306.

39:150 Contemporary Asia News Colloquium 2 s.h.
Same as 16W:181.

39:153 Traditional China 3 s.h.
Same as 16W:195.

39:154 Modern China: 1800 to Present 3 s.h.
GE: foreign civilization and culture. Same as 16W:196.

39:156 Art of Japan 3 s.h.
Same as IH:122.

39:157 Chinese Calligraphy 2 s.h.
Bashmouth, ink technique.

39:159 Art of China 3 s.h.
Same as IH:119.

39:160 Goddesses in India 3 s.h.
Development of Buddhist, non-Buddhist religious practices; religion in family life, impact of Christianity, creation of nationalist state ideology. Sophomore or higher standing or consent of instructor required. Recommended: Asian culture, history. Same as 32:182.

39:162 Buddhist Sacred Texts 3 s.h.
Same as 32:180.

39:163 Indian Religious Texts 3 s.h.
Religious, philosophical works of ancient and medieval India in English translation. Same as 32:171.

39:167 Religion in India 3 s.h.
Same as 32:161.

39:168 Painting of India 3 s.h.
Same as 32:175, IH:118.

39:169 Karma, Rebirth, and Human Destiny 3 s.h.
Same as 32:160.

39:170 Zen Buddhism 3 s.h.
Same as 32:188.

39:171 Buddhism and Chinese Culture 3 s.h.
Same as 32:166.

39:172 Comparative Ritual 3 s.h.
Same as 32:172.

39:172 Early Modern Japan 3 s.h.
Political, social, cultural history of Japan from Tokugawa shogunate to Meiji Restoration. same as 16W:172.

39:173 Modern Japan to 1945 3 s.h.
Political, social, cultural history from mid-19th century. same as 16W:173.

39:176 South Asia Social Science History 3 s.h.
Historical origins of key social science topics in south Asia: caste, population, gender dilemmas, the environment. Same as 16W:189.

39:178 Government and Politics of the Far East 3 s.h.
GE: foreign civilization and culture. Same as 30:143.

39:179 Scripture, Culti, and practice of Chinese Religions 3 s.h.
Same as 32:179.

39:181 Art of India 3 s.h.
Same as 32:174, IH:115.

39:182 Tokugawa Religion 3 s.h.
Japanese religion and thought, including Confucian, Buddhist and Shinto developments, from 1600 to mid-19th century. Same as 32:187.

39:190 Indian Religion and Social Science 3 s.h.
Classical Indian religion according to social scientific principles; issues of ethnographic and socio-historical method. Same as 32:190.

39:193 Comparative Cultural Criticism 3 s.h.
Same as 8:189,48:193.

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 and other cultural texts. Same as 131:197.

39:199 Asian Studies 3 s.h.
Same as 32:234.

39:201 M.A. Pedagogy Project 3 s.h.
Consent of instructor required. Same as 9:234, 13:221,41:234.

39:234 principles of Teaching and Learning Foreign Languages 3 s.h.
Consent of instructor required. Same as 9:234, 13:221,41:234.


39:272 Seminar: East Asian Religion 3 s.h.
Emphasis on China and/or Japan. Same as 32:237.

39:280 South Asian Research Seminar Faculty and student research.

39:281 Critical Theory and the Non-West 3 s.h.
Three thousand years of sacred literature and practice; important and characteristic feminine deities who inhabit the religious universe of South Asia. same as 32:160.

39:287 Readings: Japanese History 3 s.h.
Same as 32:294.

39:295 Readings in the History of India 3 s.h.
Same as 32:295.

Individual Study for Advanced Students

39:177 Second Language Classroom Learning 3 s.h.
Same as 7E:183, 7S:185.

39:191 Honors Tutorial 3 s.h.

39:195 Senior Honors Thesis 3 s.h.

39:200 Structure of Japanese 3 s.h.
Japanese language as linguistic system; basic linguistic terminology, word systems, grammar, meanings, usages. Prerequisite: 39: 122 or consent of instructor.

39:203 Teaching Chinese as a Foreign Language I: Issues and Research 3 s.h.
Issues in language pedagogy in general, Chinese pedagogy in particular.

39:202 Teaching Japanese as a Foreign Language 3 s.h.
Instructional methodology, curriculum, and material design; hands-on experience. Prerequisite: 39:122 or consent of instructor.

39:205 Teaching Chinese as a Foreign language II: Curriculum, Materials, Practicum 3 s.h.
Multilevels of major Chinese textbooks, curricular organizational schemes, existing language programs, communicative language 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.

39:215 Individual Chinese for Advanced Students 3 s.h.
Research, translation projects. Consent of instructor required. Prerequisite: 39:129 or equivalent.

39:216 Individual Sanskrit for Advanced Students 3 s.h.
Research, translation projects. Consent of instructor required. Prerequisite: fourth-year proficiency.

39:217 Individual Hindi for Advanced Students 3 s.h.
Readings in medieval, modern Hindi. Consent of instructor required.

39:234 principles of Teaching and Learning Foreign Languages 3 s.h.
Consent of instructor required. Same as 9:234, 13:221,41:234.


39:290 M.A. Pedagogy Project 3 s.h.

39:291 M.A. Thesis 3 s.h.
Offered fall semesters.

39:292 M.A. Thesis 3 s.h.
Offered spring semesters.
## ASTRONOMY

See “Physics and Astronomy.”

## BIOCHEMISTRY

Head: Alan G. Goodridge
Professors: Arthur Arron, Mary Sue Coleman, John E. Donelson, Alice B. Fulton, Alan G. Goodridge, Rex Montgomery, Bryce V. Plapp, Peter Rubenstein, Arthur A. Spector, Lewis D. Steigink, Earle Stellwagen, Larry S. Tobacman, Joseph Walker


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. The requirements are outlined below. Students choose advanced science electives to supplement biochemical studies or as part of a minor or a double major. Examples of two such electives are 2:128 Fundamental Genetics and 22C:7 Introduction to Computing with FORTRAN. Science elective courses numbered below 100 need adviser’s approval to be counted toward the degree.

Transfer credit for biochemistry courses requires the approval of the undergraduate adviser in Biochemistry.

### Bachelor of Science

The B.S. degree program in biochemistry prepares students to work in positions that also excellent preparation for graduate study in biochemistry and related sciences or for study toward a professional degree in the health sciences.

The B.S. degree in biochemistry requires 76 semester hours in addition to the College of Liberal Arts General Education Program requirements. Courses required for the B.S. degree are as follows.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 M25-26 Calculus I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>22M:35-36 Engineering Calculus I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>2:10-11 Principles of Biology I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>4:13-14 Principles of Chemistry I-11</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>4:18-19 Chemical Science I-II (preferred)</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>4:16 Principles of Chemistry Lab</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>4:121-122 Organic Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>4:131-132 Physical Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>4:141 Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>29:17-18 Introductory Physics I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>99:1 Orientation and Introduction to the Field of Biochemistry (taken twice)</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>99:101 Technical Writing in Biochemistry</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:102 Undergraduate Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:120 Biochemistry and Molecular Biology I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:130 Biochemistry and Molecular Biology II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:140 Experimental Biochemistry</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>*99: 155 Research, Independent Study (must be taken for B.S. honors)</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>
| Advanced science electives, chosen in consultation with adviser | 9 s.h. | *Students may register in 99:155 only if they have earned grades of A or B in 99:120, 99:130, and 99:140, or have consent of adviser and instructor; 6 semester hours is the minimum requirement for credit in this course.

### Bachelor of Arts

The B.A. degree in biochemistry requires 61 semester hours in addition to the College of Liberal Arts General Education Program requirements. The required courses are as follows.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:10-11 Principles of Biology I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>4:13-14 Principles of Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>4:18-19 Chemical Science I-II (preferred)</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>4:16 Principles of Chemistry Lab</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>4:121-122 Organic Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>4:131 Physical Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or</td>
<td>4:132 Physical Chemistry II</td>
</tr>
<tr>
<td>22M: 15 Mathematics for the Biological Sciences</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M: 16 Calculus for the Biological Sciences</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>29:11-12 College Physics</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>99:1 Orientation and Introduction to the Field of Biochemistry (taken twice)</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>99:101 Technical Writing in Biochemistry</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:102 Undergraduate Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:120 Biochemistry and Molecular Biology I</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

### Bachelor of Science and Bachelor of Arts

- 99:130 Biochemistry and Molecular Biology II 4 s.h.
- 99:140 Experimental Biochemistry 4 s.h.

Advanced science electives, chosen in consultation with adviser 6 s.h.

In addition, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include 4 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.

### Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

#### Bachelor of Science

Before the third semester begins: 22M:25 or 22 M:35; 4:18-19 or 4:13-14, and 4:16; 99:1; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 4:121-122 and 4:141; 22M:26 or 22M:36; 2:10-11; and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 29:17-18, 99:120, 99:130, and 99:140, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 4:131 or 4:132, a science elective, and at least 3 semester hours of 99:155

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

#### Bachelor of Arts

Before the third semester begins: math through 22M:16 or higher; 4:18-19 or 4:13-14, and 4:16; 99:1; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 44:121-122, 2:10-11, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 29:11-12, 99:120, 99:130, and 99:140, two science electives, and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: the courses listed above, plus 4:131 or 4:132, and a science elective

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

Honors

Qualified students may earn an honors degree in biochemistry. They must be 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 the following.

99:241-242 Biophysical Chemistry I-II 6 s.h.
99:282 Seminar 2 s.h.
*142:210 & 215 Molecular Biology I-II 7 s.h.

*The molecular biology courses are interdisciplinary; for course descriptions, see “Molecular Biology” in the College of Medicine section of the Catalog.

Students spend the other half of their time working in four 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 8 semester hours consisting of two short courses (1 semester hour each) in biochemistry and 6 semester hours of elective science courses (numbered above 100 or 200) in other departments.

Students take the comprehensive examination before the end of June in their second year, after which they are admitted formally to graduate study. This program culminates in students’ successful defense of their completed thesis work before an examining committee.

In addition to meeting these requirements and those of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two or three semesters.

Throughout the program, students are associated with 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 flexible enough to accommodate students with bachelor’s degrees in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year, college-level courses in organic and physical chemistry, biology, physics, and mathematics through calculus. Students are expected to have had one or more introductory courses in biochemistry.

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, 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, protein folding, complex carbohydrate structure and function, regulation of gene expression, mechanisms involved in transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, structure, and membrane determinants of cell shape and motility.

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 Academic Computing (through Information Technology Services). 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, computed tomography, optical rotatory 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, 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
99:120 Biochemistry and Molecular Biology I 4 s.h.
Structures of nucleic acids, proteins, carbohydrates, lipids and their participation in cellular transport, catalysis, oxidative reactions; first course of two-semester sequence that concludes with 99:130. Prerequisites: two semesters of general chemistry and one of organic chemistry. Recommended: 2:10, 2:11, and an additional organic chemistry course.

99:130 Biochemistry and Molecular Biology II 4 s.h.
Molecular dynamics of biological systems, metabolism of lipids and nitrogen-containing compounds; Information transmission in procaroytes, eucaryotes; recombinant DNA techniques; chemistry and enzymology of replication, transcription, translation, cell transformation, regulation of gene expression. Prerequisite: 99:120.

99:140 Experimental Biochemistry 4 s.h.
Quantitative, qualitative experiments on identification, fractionation, characterization of constituents of biochemical systems; use of modern instruments and techniques for spectrophotometry, chromatography, electrophoresis, centrifugation, radiotrace studies; emphasis on experimental design, interpretation. Prerequisites: 99:120, and 4:16 or 4:20.

99:155 Research Independent Study 2-6 s.h.
Participation by biochemistry undergraduates in biochemical research. Prerequisites: B- or better in 99:120, 99:130, and 99:140; and a g.p.a. of B or better in the third.

99:160 Biochemistry Tutorial 0 s.h.
Elements of biochemistry, their relationship to medicine. Open only to students in the health science colleges. Offered summer session. Consent of instructor required.

99:161 Biochemistry for Dental Students 4 s.h.
Open only to dental students or to others with consent of instructor. Prerequisite: 4:121 or consent of instructor. Recommended: 4:122.

99:162 Biochemistry for Pharmacy Students 4 s.h.
Open only to pharmacy students or to others with consent of instructor. Prerequisite: 4:121 or consent of instructor. Recommended: 4:122.

99:163 Biochemistry for Medical Students 4 s.h.
Concepts of biochemistry; their application to understanding clinical problems. Open only to medical students.

99:164 Biochemistry for Physician Assistant Students 3 s.h.
Aspects of general biochemistry necessary for understanding the biochemical basis of human disease; analysis of appropriate clinical cases. Prerequisite: 99:110 or equivalent biochemistry course.

99:235 Genetics Seminar 0.2 s.h.
May be repeated. Prerequisite: 2:128 or consent of instructor. Same as 2:215, 6:215.

99:226 Enzyme Kinetics & Bioorganic Mechanisms 1-2 s.h.
Principles, applications of enzyme catalysis; mechanisms of typical biochemical reactions. Prerequisite: 99:120 or 99:241 or consent of instructor.

99:231 Regulation Intermediary Metabolism 1-2 s.h.
Regulation of central metabolic pathways. Prerequisite: 99:130 or consent of instructor.

99:237 Topics in Biochemistry 1-2 s.h.
May be repeated. Prerequisite: 99:130.

99:241 Biophysical Chemistry I 3 s.h.
Quantitative analyses of biochemical systems; application of thermodynamics, equilibria, spectroscopy, X-ray crystallography to study of structure and function of macromolecules. Consent of instructor required. Prerequisite: one year of biochemistry. Recommended: course in physical chemistry.

99:242 Biophysical Chemistry II 3 s.h.
Continuation of 99:241, which is prerequisite; hydrodynamics, electrophoresis, chromatography, kinetics, macromolecular interactions and dynamics, regulatory systems.

99:261 Research Techniques 1-3 s.h.
Laboratory rotation for first-year graduate students in biochemistry.

99:272 seminar in Cellular and Molecular Biology 1 s.h.
Same as 60:272, 71:272, 72:272.

99:275 Perspectives in Bioacalysis 1 s.h.

99:282 Seminar 0-1 s.h.
Techniques for presentation of scientific information.


BIOLIGICAL SCIENCES

Chair: Gary N. Gussin


Associate professors: Richard V. Bovbjerg, Jerry J. Kollons

H. Lin, Robert E. Malone, John R. Menninger, Roger D. Milikan, Jeffrey C. Murray, Jonathan E. Poulton, Jeffry T. Schablon, David R. Soll, Eugene Spuziani, Barbara A. Stay, Wei-yeh Wang, Norman E. Williams, Chun-Fang Wu

Professors emeriti: Richard V. Bovbjerg, Jerry J. Kollons

Assistant professors: Chi-Lien Cheng, Stephen B. Beard, Erin Irish, John Nason

Undergraduate degrees: B.A., B.S. in Biology, Botany; minors in Biology, Botany

Graduate degrees: M.S., Ph.D. in Biology, Botany

Undergraduate Programs

Study in the biological sciences prepares students for work in a wide variety of fields, including research or service careers at the technical level in educational, governmental, and industrial institutions or foundations. Departmental programs also prepare students to teach at all levels, to gain certification, to enter advanced degree programs leading to independent research in biological fields, or to work in the health professions, such as medicine, dentistry, pharmacy, nursing, paramedical practice, medical technology, dental hygiene, and physical therapy.

Courses required for the B.A. and B.S. degrees emphasize structures and processes common to living animal and plant systems at molecular, cellular, organismic, and population levels. Students also may follow their own interests by concentrating elective courses in areas such as genetics, development, physiology, ecology, molecular biology, or plant and animal systems.

Students interested primarily in field biology may use the Macbride Nature Recreation Area and may take varied courses emphasizing field biology offered during the summer at the Iowa Lakeside Laboratory at Lake Okoboji.

Students who wish to count course work done at another institution toward requirements for a biological sciences degree at Iowa should consult with their biological sciences adviser.

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. may be the degree 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 either degree. Students seeking the B.S. in biology are required to take the following courses.

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.

2:127 Introduction to Plant Molecular Biology 3 s.h.

2:155 Cell Physiology 4 s.h.

2:171 Molecular Genetics 4 s.h.

Developmental biology and physiology:

2:104 Introduction to Developmental Biology 3 s.h.

2:110 Plant Physiology 3 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 of these:

2:116 Field Ecology 4 s.h.

2:129 Fundamental Genetics Laboratory 3 s.h.

2:130 Fundamental Genetics Laboratory: Molecular Genetics of Yeast 3 s.h.

2:152 Endocrinology Laboratory 2 s.h.

2:155 Cell Physiology 4 s.h.

2:196 Honors Investigations (minimum total of 3 semester hours) 3 s.h.

2:199 Introduction to Research (minimum total of 3 semester hours) arr.

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 in breadth menus and as investigative laboratory courses may be used as electives unless they already have been used to satisfy the breadth or investigative laboratory requirements. No more than 3 semester hours of 2:196 and 2:199 may be counted toward the elective requirement.

OTHER DISCIPLINES

4:31-14 Principles of Chemistry I-II 6 s.h.

4:16 Principles of Chemistry Laboratory 2 s.h.

6 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.
or
4:122 Organic Chemistry II 3 s.h.
or
99:110 Biochemistry 3 s.h.
29:11-12 College Physics I-II 8 s.h.
or
29:17-18 Introductory Physics I-II 8 s.h.

One of these:
22M:16 Calculus for the Biological Sciences 4 s.h.
22M:21 Calculus and Modeling 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.
63:161 Introduction to Biostatistics 3 s.h.
o r
22S:102 Introduction to Statistical Methods 3 s.h.
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 Principles of Chemistry I 3 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 (if not taken during the first semester) 4 s.h.

Students who have sufficient high school preparation in biology and chemistry are encouraged to enroll in 2:10 Principles of Biology I the first semester of their freshman year.

Bachelor's Degrees in Botany
Before the third semester begins: math (through calculus I; 4:13, 4:14, and 4:16; 2:10; and at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: the courses listed above, plus 2:11, 4:121-122, two other courses in the major, and at least one-half of the semester hours required for graduation
Before the seventh semester begins: the courses listed above, plus five or six more courses in the major, and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: the courses listed above, plus three or four more courses in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor's Degree in Biological Sciences
● Bachelor's Degree in Liberal Arts

Before the fourth semester begins: the courses listed above, plus four more courses in the major
Before the sixth semester begins: the courses listed above, plus two or three more courses in the major
Before the seventh semester begins: the courses listed above, plus five or six more courses in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor's Degree in Botany
Students interested in specializing in plant biology should consult the undergraduate advising coordinator for information.

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

B.A. in Biology
Before the third semester begins: math (through calculus I; 4:13, 4:14, and 4:16; 2:10; and at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: the courses listed above, plus five or six more courses in the major, and at least one-half of the semester hours required for graduation
Before the seventh semester begins: the courses listed above, plus six more courses in the major, and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: the courses listed above, plus 1-2 more courses in the major

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

BS in Biology
Before the third semester begins: math (through calculus I; 4:13, 4:14, and 4:16; 2:10; and at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: the courses listed above, plus 2:11, 4:121-122, two other courses in the major, and at least one-half of the semester hours required for graduation
Before the seventh semester begins: the courses listed above, plus five or six more courses in the major, and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: the courses listed above, plus three or four more courses in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor's Degree in Botany
The major in Botany is not available on a four-year graduation plan. Consult the undergraduate advising coordinator in the Department of Biological Sciences for information.

Honors
Biology majors who are members of the University Honors Program may enroll in the Honors Program in Biology, joining a small, active group of undergraduates with common interests. Throughout their undergraduate residence, honors students in biology may enroll in honors sections of courses offered by biological sciences and other liberal arts departments. In addition, by associating with one of the department's research groups or participating in independent research projects guided by faculty members, honors students are introduced to the pursuits of practicing scientists.

To graduate with honors in biology, students must complete the requirements for a B.S. or B.A. in biology with a grade-point average of at least 3.20, both overall and in all course work in the major taken at The University of Iowa. In addition, they must earn 1-2 semester hours in 2:198 Honors Seminar in Biology or an advanced-level biology seminar course, and at least 6 semester hours (taken over two or more semesters) in 2:196 Honors Investigations. Honors students also must write a brief research proposal summarizing the background and goals of their proposed honors research. When the research is completed, they must submit an acceptable honors thesis and give a brief oral presentation of their research findings to other biology honors students. Three semester hours of 2:196 Honors Investigations may be used to...
fulfill the investigative laboratory requirement for the B.S. in biology.

Biology majors interested in pursuing an honors degree should contact the biology honors adviser as early in their program as possible (preferably in the sophomore or junior years) so that they may be matched with an appropriate lab.

**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.

**Minor in Biology**

Students majoring in other subjects may earn a minor in biology. The 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 may be 100-level courses other than L:100, L:101, and L:130 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 sciences courses taken at other institutions, except Iowa Lakeside Laboratory, do not apply to the 100-level course requirement in the biology minor.

**Minor in Botany**

Students interested in a minor in plant biology should consult the undergraduate advising coordinator for information.

**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 of the department’s Ph.D. graduates have been appointed to college or university faculties, while most of the others hold research positions. A substantial number of students who completed their academic 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 in genetics. On the basis of examination results, students may be excused from further work in genetics or may be advised to take specific course work to enhance their background in this area. Students must make up any undergraduate deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor’s degree outside biological sciences may request modification of certain area requirements; the student’s degree committee decides 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, bryology, paleobotany, plant biochemistry, taxonomy, and parasitology. When appropriate, projects may 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: cell and developmental 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 thesis based on original research. Ordinarily, 6-8 semester hours are assigned to thesis research and writing. The remaining hours are selected in consultation with the student’s advisory committee; the choice of courses is tailored to students’ backgrounds and career goals.

Students receive academic credit for courses they are required to take, but credit awarded for courses required by the admissions committee to make up undergraduate deficiencies does not count toward the 30-semester-hour requirement. After the thesis is accepted, candidates must pass an oral examination based on the thesis and related subjects.

**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-with 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**

Students interested in graduate study in plant biology should consult the graduate coordinator.

**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**

Students interested in graduate study should consult the graduate coordinator.

**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 Ph.D. students 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 2.301 Research.
Biological. 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.

Grants-in-aid to faculty members: 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. Successful applicants for graduate admission usually have a grade-point average of at least 3.00 and a Graduate Record Examination (GRE) General Test (verbal plus quantitative) score higher than 1200. 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.

Students applying for admission to one of the master’s programs in biology should have a bachelor’s degree in one of the biological sciences. Students with bachelor’s degrees in other areas may need to register as 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 modern facilities and equipment for state-of-the-art research in all areas in which graduate teaching is conducted.

Studies conducting research projects that require plant cultivation have access to four greenhouses and special culture rooms with controlled environments. There is also an herbarium for research and general study containing more than 200,000 specimens. In addition to department facilities, campuswide facilities include a DNA oligonucleotide synthesis and enzyme lab, oligopeptide synthesis and sequencing, and spectroscopy laboratories, and a computerized image analysis facility. A hybridoma facility does fusions and screening and provides researchers with monoclonal antibodies. A campus fermentation lab grows large amounts of microorganisms (e.g., 100 liters) for use in protein isolation. The department has its own electron microscope facility, and there is a University electron microscopy/lab with confocal, scanning, and transmission electron microscopes.

Computer-Assisted Learning for Undergraduates in Biology provides computing facilities for undergraduates. Graduate students have their own computer room with IBM and PowerMac PCs and terminals linked to a VAX minicomputer and campus mainframe.

A computerized motion analysis facility, housed in the basement of the Biology Building, was the first of its kind in the world. The department also recently established a digital deconvolution microscopy facility. 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
Advanced 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, physiology, 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
2.00 Cooperative Education Internship 0 s.h.
2.1 Introduction to Botany 4 s.h.
Biology of plant Me emphasis on structure, function, reproduction, diversity, inheritance GE: natural sciences.
2.2 Introductory Animal Biology 4 s.h.
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 relationship.
2.6 Biology Techniques 2 s.h.
Current techniques, hands-on training in molecular biology; part of Hughes Life Science Summer Program. For high school students.
2.7 Hughes Native American Mentor Program 3 s.h.
Two-part program introducing native American high school students to current molecular biology techniques and lab research with Faculty mentor.
2.10 Principles of Biology I 4 s.h.
Structure, function of cells; structure, function, reproduction of higher plants and vertebrate animals; first of two-semester course sequence. GE: 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. GE: 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.
2.15 Biological Concepts and Applications 4 s.h.
Modern principles of biology considered in context of natural phenomena and everyday application; for non-science majors who wish to teach.
2.21 Human Biology 4.5 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 biotechnology majors. GE: 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. GE: natural sciences.
2.40 Biology of the Brain 3 s.h.
Scientific methodology applied 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. GE: natural sciences. Open only to conscience majors. Offered spring semesters.
2.80 Plant Propagation 2-3 s.h.
Vegetative and seed propagation techniques; cuttings, budding and grafting, nursery culture techniques, seed quality, seed dormancy, seeding biology.
2.81 Human Genetics 3 s.h.
Hereditability in human families, Copulations; genetic basis of normal, abnormal traits; chromosome behavior; molecular basis of genetics, sex determination. GE: natural sciences.
2.87 Spring Flora 3 s.h.
Recognition, identification of spring-flowering herbaceous plants, native woodland trees and shrubs, woody landscape plants; family characteristics, use of taxonomic key.
2.91 Genetics and Evolution 3 s.h.
Description, evidence, mechanisms of evolution; development; central role of genetics; fossil record; origin of life from molecules and the remarkable organisms that have resulted. GE: natural sciences.
2:117 Plant Developmental Biology 3 s.h.
Developmental processes throughout life cycle of vascular plants; current knowledge of mechanisms; emphasis on molecular, genetic approaches to development, including transposon tagging, transformation. Offered spring semesters of even years. Prerequisites: 2:1, or 2:10 and 2:11, or 2:129, or consent of instructor.

2:120 Paleobotany 4 s.h.
Native and cultivated ferns, conifers, flowering plants in Iowa; identification, recognition, evolutionary relationships among plant families; individual field collections. Recommended: introductory botany or biology. Consent of instructor required. Same as 61:169.

2:121 Quaternary Palynology and Paleobotany 4 s.h.
Nature, origin, use of pollen and spores; pollen-bearing deposits; application to geological, ecological, botanical, archaeological problems. Prerequisite: college geology or botany. Same as 12:128.

2:122 Cell and Molecular Biology of Protista 2-3 s.h.
Basic biological principles; focus on free-living amoebas, flagellates, ciliates, some parasitic forms; evolution, locomotion and behavior, endosymbiosis, genetics; development; basic cellular functions such as feeding, conjugation, regeneration, cell division. Prerequisites: 2:10 and 2:11, or consent of instructor.

2:123 Plant Biochemistry 3 s.h.
Proteins, carbohydrates, lipids, nucleic acids; their chemical structures and participation in plant metabolism; emphasis on processes unique to plants, including photosynthesis, phototransformation, nitrogen fixation. Prerequisites: 2:10, 2:11, and 4:12; or consent of instructor.

2:124 Animal Physiology 3 s.h.
Principles of cellular and systems physiology. Offered spring semesters. Prerequisites: 2:10 and 2:11, and college physics or consent of instructor.

2:125 Cytogenetics 2 s.h.
Chromosomes; process of recombination; chromosome aberrations; heterochromatin; meiotic mutants; chromosome banding, transposition. Prerequisite: 2:128.

2:126 Biochemistry of Plant Natural Products 3 s.h.
Secondary plant products (e.g., flavonoids, alkaloids, cyanogenic glycosides), their diversity, natural distribution, biosynthesis, biodegradation, tissue and subcellular localization; emphasis on proposed biochemical, ecological roles in plant metabolism. Prerequisites: 4:121 or 99:110 or 99:120, or consent of instructor.

2:127 Introduction to plant Molecular Biology 3 s.h.
Fundamentals of molecular biology and their application in understanding plant biology. Offered fall semesters. Prerequisites: 2:10 and 2:11, or equivalent.

2:128 Molecular Genetics Laboratory 3 s.h.
Mechanisms by which genes control development; methodology of scientific research applied to developmental genetics. Open only to undergraduates and first-year graduate students. Offered fall semesters. Prerequisite: 2:128.

2:129 Fundamental Genetics Laboratory 3 s.h.
Drosophila, major genetic principles; emphasis on methods of genetic analysis. Prerequisite: 2:128.

2:130 Fundamental Genetics Laboratory 3 s.h.
Saccharomyces cerevisiae yeast; fundamental concepts of genetics, introduction to tools of molecular biology; firsthand research laboratory experience. Offered fall semesters. Consent of instructor required. Prerequisite: 2:128.

2:131 Evolution 4 s.h.
Nature, evidence, analysis, implications, molecular/genetic basis, historical record, phylogeny, speciation, adaptation, investigative methods. Prerequisites: grade of C or higher in 2:131, and 99:110 or 99:120; or consent of instructor. Recommended: course in fundamental genetics. Prerequisites: 2:10 and 2:11, or consent of instructor.

2:137 Medical Mycology 4 s.h.
Basic techniques in 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, hybridization; principles of convergence, homology; plant mating systems; types of information used in making taxonomic decisions. Prerequisites: 2:1, or 2:10 and 2:11, or equivalents.

2:143 Animal Behavior 4 s.h.
Genetics, sensory physiology, migration, development of behavior, circadian rhythms, foraging strategies, aggression, sexual and parental behavior, group selection, social behavior. Prerequisites: 2:10 and 2:11. Recommended: advanced standing.

2:150 Endocytology 3 s.h.
Glinds of internal secretion; emphasis on vertebrate systems; actions of hormones in regulating growth and metabolism, organ to molecular levels. Prerequisites: 2:10 and 2:11, or equivalents. Recommended: organic chemistry.

2:151 Summer Flora 2-3 s.h.
Native and cultivated ferns, conifers, flowering plants in Iowa; identification, recognition, evolutionary relationships among plant families; individual field collections. Recommended: introductory botany or biology. Consent of instructor.

2:155 Cell Physiology 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, discussion. Offered spring semesters. Prerequisites: 2:128, and 99:110 or 99:120, and 22M:16 or 22M:21 or 22M:25, and 22M:21 or 22M:27, or consent of instructor. Consent of instructor required. Same as 104.

2:156 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. same as 12:156, 52:156, 60:156.

2:162 Population Genetics and Molecular Evolution 3 s.h.
Genetic structure, dynamics; evolution of macromolecules; molecular clocks, evolutionary trees; theory, investigative methods, findings. Prerequisites: grade of C- or higher in 2:128 and 2:131, or consent of instructor.

2:164 Topics in Plant Molecular Biology 1-2 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 4 s.h.
Mechanism, regulation of RNA, DNA, protein biosynthesis, with emphasis on methods of genetic analysis, application of modern recombinant DNA techniques to basic problems. Open only to undergraduates and first-year graduate students. Prerequisite: grade of C- or higher in 2:128 or 99:120, or consent of instructor. Recommended: course in fundamental genetics.

2:172 Topics in Molecular Genetics 1-2 s.h.
General mechanisms for control of RNA, DNA, protein synthesis. Prerequisite: grade of C- or higher in 2:128 or 99:120, 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, embryogeny, metamorphosis, emphasis on neuroendocrine regulation. Consent of instructor required. Prerequisites: 2:10 and 2:11, or equivalents.

2:179 Topics in Molecular Evolution 1-2 s.h.
Current topics: 16S and 16S-like RNA and phylogeny, comparative analysis of DNA and protein segments in chromosomes. May be repeated. Prerequisites: grade of C- or higher in 2:131, and 99:110 or 99:120; or consent of instructor.
2:180 Fundamental Neuroscience 3 s.h.
Neuronal function, plasticity and development at the molecular and cellular levels. Offered fall semesters. Prerequisites: 2:10 and 2:11. Recommended: 29:12 and 99:110, 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 Consent of instructor required.
1-2 s.h.
Offered fall semesters of odd years. Consent of instructor required.

2:184 Topics in Neurobiology 1.2 s.h.
Offered full semesters of odd years. Consent of instructor required.

2:185 Neurobiology of Learning and Memory 2 s.h.
Offered Fall semesters of odd years. Consent of instructor required.

2:190 Seminar: Cell Structure and Function Consent of instructor required.
Current literature; cytoplasmic matrix and detailed organization, composition, functional diversity of biological membranes. Prerequisite: 2:12 or consent of instructor.

2:192 Basic Biology of Human Disease 2 s.h.

2:194 Topics in Developmental Biology 1-2 s.h.
Prerequisite: 2:104 or consent of instructor.

2:195 Pattern Formation in Development 2 s.h.
Positioning of parts, development of pattern in multicellular and unicellular systems through genetic analysis. Offered spring semesters of even years. Graduate standing or consent of instructor required. Prerequisite: 2:128.

2:196 Honors Investigations arr.
Experimental and theoretical research, readings in biological sciences. Open only to honors students. May be repeated. Consent of instructor required.

2:198 Honors Seminar in Biology 1-2 s.h.
Open only to honors students. May be repeated.

2:199 Introduction to Research arr.
May be repeated. Consent of instructor required.

Primarily for Graduates

2:154 Lectures in Cell Physiology 3 s.h.
Same as 2:155 without laboratory or discussion. Graduate standing and consent of instructor required. Prerequisites: 2:128, and 99:110 or 99:120, and 22M:16 or 22M:25, and 29:11 or 29:17; or consent of instructor. Corequisites: 29:12 or 29:18.

2:193 Topics in Cell Motility 1.3 s.h.
Molecular basis, consequences of cell motility in systems ranging from bacteria to ameba to neural growth cones. Open only to graduate students.

2:200 Biology Colloquium 0 s.h.

2:201 Seminar: Botany 0-1 s.h.

2:205 Graduate Lectures in Genetics 1 s.h.

2:206 Graduate Lectures in Cell and Developmental Biology 1 s.h.

2:207 Graduate Lectures in Physiology 1 s.h.

2:208 Graduate Lectures in Ecology and Evolution 1 s.h.

2:210 Topics in Nematode Development Genetics 1-2 s.h.
Offered fall semesters. Graduate standing or consent of instructor required. Prerequisites: 2:104 and 2:128.

2:215 Genetics Seminar 0-2 s.h.
May be repeated. Prerequisite: 2:128 or consent of instructor. Same as 61:215, 99:215.

2:218 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: a course in cell biology. Same as 60:218,61:218.

Same as 60:220, 61:220.

2:221 Computational Neurobiology 2 s.h.
Neuronal processing of information, neuronal networks. Offered fall semesters. Consent of instructor required.

2:225 Seminar: Endocrinology 1.2 s.h.
Basic physiology, biochemistry of hormone action. Prerequisite: 2:120 or equivalent.

2:232 Seminar: Molecular Genetics 1-2 s.h.
Current research on structure, regulation, function of nucleic acids, genes, chromosomes. Prerequisite: 2:128 or equivalent.

2:233 Seminar: Ecology 2-3 s.h.
Consent of instructor required.

2:245 Developmental Neuroscience 2 s.h.
Same as 60:245, 132:245.

2:253 Molecular Developmental Neurobiology 1.2 s.h.
Readings on a specific issue. Offered spring semesters. Graduate standing or consent of instructor required.

2:265 Neuroscience Seminar 0-1 s.h.

2:271 Seminar in Cell Physiology 1-2 s.h.
Topics include biology of aging. May be 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.

CENTER FOR THE BOOK

Director: K.K. Merker
Professors: Charles F. Altman (Communication Studies), Janet Altman (French and Italian), Constance Berman (History), Jeffrey Cox (History), David Hamilton (English), Brooks Lansing (English), K.K. Merker (English), Katherine Tachau (History), Steven Ungar (French and Italian)

Associate professor: Glen Epstein (Credit Programs)

Associate professors: Helena Dettmer (Classics), David Dunlap (Art and Art History), Geoffrey Hope (French and Italian), Douglas W. Jones (Computer Science), Carl Oegen (Library and Information Science), James Snitzer (Art and Art History), Jonathan Wilcox (English)

Adjunct associate professor: Timothy Barrett (Art and Art History)

Assistant professors: Glenn Ehrlwine (German), Ralph Keen (Religion), Max Thomas (English), Mary Trachsel (Rhetoric), Carol Swierno (Rhetoric)

Adjunct assistant professor: Kathleen Kamerick (History)

Associated librarians: David Schoonover (Special Collections), Rijn Temptmton (Art Library), Pamela Spritzmoller (Preservation and Conservation), Timothy Shipe (Bibliography), Christine Africa (Bibliography)

Graduate degree: certificate in Book Studies/Book Arts and Technologies

The Center for the Book promotes a comprehensive, interdisciplinary program for study of the book and for creative practice in the arts and technologies of the book. The center is home to a unique configuration of workshops designed for personal work or artistic collaboration. Art academic and scholarly program complements the workshops by focusing on the book’s various histories, its role in culture, contemporary theoretical approaches to its study, and related research.

As an independent department, the center consists of a group of faculty members and specialists who teach classes, train apprentices, conduct research, and practice book-related crafts. Faculty members from history, classics, communication studies, English, and other academic areas across the University also teach courses and work with the academic curriculum relating to historical and cultural areas of book studies.

Close affiliates of the center include the Conservation Lab and Special Collections in the Main Library; the School of Library and Information Science; the School of Art and Art History; the Center for Credit Programs; and The Iowa Review. The center also sponsors lectures and exhibitions and co-sponsors events with the University of Iowa Arts Club.

Certificate Program

The center offers a graduate certificate in book studies/book arts and technologies through the Graduate College. Graduate students who do not wish to pursue a regular degree are permitted to pursue the certificate without affiliation with any one department.

The program’s principal objectives are:
- to place the interdisciplinary study of book history, arts, and technologies in academic and aesthetic contexts;
- to provide a structured program for graduate students in art, English, history, library and information science, and other departments who are seriously interested in book studies; and,
- to give no-graduate, graduate-level students who wish to study the book a framework for their study.

Students have two options in pursuing the certificate. Graduate students fully enrolled in a graduate degree program at Iowa may work concurrently toward the certificate and an M.A., M.F.A., or Ph.D. Students who wish to pursue the certificate but not a graduate degree may do so with special status in the Graduate College.

Requirements

The certificate requires 24 semester hours in approved courses in book history, the arts and technologies of the book, or a combination of the two. Six of the 24 are earned in two required introductory courses, which are offered at least once each academic year.

8:203/21:223 History of the Book (3 s.h.) and 108:190 The Arts and Technologies of the Book (3 s.h.). Although it is not required that these two courses be taken before the other courses, it is recommended that they be taken early in the program.

Students concentrate their studies in the area of their choice by choosing courses already cross-referenced with the center or courses the student or the center have identified as related to the particular emphasis area.

The final project may be a research paper in book studies, the creation of a physical object in the arts and technologies of the book, or an approved project combining the two in a way that reflects the student’s main interests and concerns.

Admission

Admission requires active standing in the graduate college. Applicants must submit a statement of purpose to the center. For more information about admission, contact the center.

Center for the Book ● Liberal Arts 105

Liberal Arts

Center for the Book
Financial Support
While the center does not offer scholarships, students may be able to secure support from regular University sources or from funding agencies such as the National Endowment for the Arts (individual and apprenticeship grants). Working assistants are occasionally available at the center's shops. Short-term working internships also may be available to qualified nonstudent professionals, especially in the areas of bookmaking, papermaking, and letterpress printing.

Associated Courses

1F:103 The Media of Drawing 3 s.h.
22C:197 Readings in Computer Science 3 s.h.

Courses

106:29 Graphic Design I 3 s.h.
108:110 Papermaking 3 s.h.
108:120 Advanced Papermaking 3 s.h.
108:130 Paperworks 3 s.h.
108:134 Silkscreen 3 s.h.
108:135 Offsets Production workshop 3 s.h.
108:140 Calligraphy I 3 s.h.
108:141 Calligraphy II 3 s.h.
108:142 The Medieval Manuscript Book 3 s.h.
108:150 Bookbinding: Non-Adhesive Binding 3 s.h.
108:151 Bookbinding Case Binding 3 s.h.
108:152 Bookbinding Advanced Structures 3 s.h.
108:153 Studies in Bookbinding 3 s.h.
108:154 Bookbinding: Non-Traditional Structures 3 s.h.
108:160 Artist's Books Workshop 3 s.h.
108:170 Studies in Book Technologies 3 s.h.
108:187 The Handprinted Book: Design and Production 3 s.h.
108:190 The Arts and Technologies of the Book 3 s.h.
108:200 Special Project for Graduate Students arr.
108:210 Individual Instruction in Papermaking/Paperworks arr.
108:240 Bibliography 3 s.h.
108:28 Graphic Design I 3 s.h.
108:310 Studies in Book Technologies 3 s.h.
108:320 Bookbinding Advanced Structures 3 s.h.
108:330 Studies in Bookbinding 3 s.h.
108:340 Bookbinding: Non-Traditional Structures 3 s.h.
108:350 The Handprinted Book: Design and Production 3 s.h.
108:360 The Arts and Technologies of the Book 3 s.h.
108:370 Special Project for Graduate Students arr.
108:380 Individual Instruction in Papermaking/Paperworks arr.
108:390 Bibliography 3 s.h.

CHEMISTRY
Chair: Darrell P. Eyman
Instructor: David F. Wiemer
Instructor emeriti: Norman C. Baerziger, Robert E. Buckles, John R. Doyle

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.

Requirements for the major were changed in 1995. Students who declared the major before the first day of fall 1995 classes and who will graduate before August 1999 may complete the old requirements (see the 1994-96 General Catalog).
The Bachelor of Science requires 66 semester hours of which 46 must be earned in chemistry courses. Of these, at least 9 semester hours must be earned in chemistry courses at The University of Iowa.
The following courses are required.

Chemistry
4:13-14 Principles of Chemistry I-II 6 s.h.
4:18-19 Chemical Science I-II (preferred) 6 s.h.
4:16 Principles of Chemistry Lab 2 s.h.
4:20 Chemical Science Laboratory 2 s.h.
4:21 Basic Measurement 3 s.h.
4:111-112 Analytical Chemistry I-II 6 s.h.
4:121-122 Organic Chemistry I-II 6 s.h.
4:123-124 Organic Chemistry for Majors 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.
4:142 Organic Chemistry Laboratory for Majors 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
One of these sequences:
22M:21 -22 Calculus and Modeling I-II 8 s.h.
22M:25-26 Calculus I-II 8 s.h.
22M:35-36 Engineering Calculus I-II 8 s.h.
22M:45-46 Accelerated Calculus I-II 8 s.h.

Introductory Physics
29:11-12 College Physics (accepted) 8 s.h.
29:17-18 Introductory Physics 1-11 (preferred) 8 s.h.

Credit earned in advanced science elective courses and in 4:162 Undergraduate Research must total at least 6 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 choosing 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.
The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

### Bachelor of Arts

**Before the third semester begins:** math through Calculus I, Chemistry 4:18, 4:19, and 4:20 or equivalent course work; and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** the courses listed above, plus six more courses in the major

**Before the seventh semester begins:** the courses listed above, plus three more courses in the major

### Bachelor of Science

**Before the third semester begins:** math through Calculus I, Chemistry 4:18, 4:19, and 4:20 or equivalent course work; and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** the courses listed above, plus six more courses in the major, and at least one-half of the semester hours required for graduation

**Before the eighth semester begins:** the courses listed above, plus 1-2 more courses in the major

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

### Honors

To graduate with honors in chemistry, a student must be a member of the University Honors Program, 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, or 4:18-19 Chemical Science I-II and 4:20 Chemical Science Laboratory are prerequisites for upper-level courses in chemistry.

### 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 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 oral 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.
Courses

Primarily for Undergraduates

Students planning to take more than one year of chemistry should take 4:13, 4:14, and 4:16 or 4:18, 4:19, and 4:20. Students who require only one year of chemistry may take 4:7, 4:8, and 4:16.

4:000 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.
Nonmathematical exploration of selected areas of technology; basic science background, current technological applications, implications for society; for conscience majors. No credit for students with previous college-level course work in chemistry.
GE: natural sciences.
4:7 General Chemistry I 3 s.h.
Atomic structure, chemical bonds, mole relations, stoichiometry, physical properties, reactivity, reaction mechanisms, synthesis; emphasis on alkanes, alkenes, alcohols, acids, hydrogen halides, aromatics. Prerequisites: 4:8 or 4:14 or 4:19.
4:122 Organic Chemistry II 3 s.h.
Continuation of 4:12 I; use of spectroscopic techniques to determine chemical structures; chemical kinetics of simple compounds, amino acids, proteins. GE: natural sciences.
4:111 Analytical Chemistry I 3 s.h.
Modern theory and practice; emphasis on chemical equilibria (acid-base chemistry, volatility, complexation) and electrochemical instrumentation [potentiometry, voltammetry, coulometry]. Pre- or corequisite: 4:131 or 4:132 or consent of instructor.
4:112 Analytical Chemistry II 3 s.h.
Continuation of 4:11 I; emphasis on instrumental methods, including atomic and molecular spectroscopy, mass spectrometry, chemical separations. Prerequisite: 4:111.
4:144 Physical Measurements 3 s.h.
Application of physical methods to problems; recent developments; emphasis on magnetic resonance spectroscopy. Prerequisite: 4:170.
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 solid state, electronic and spatial structure of silicon, its compounds, and related ceramic materials. GE: natural sciences.
4:13 Principles of Chemistry II 3 s.h.
Continuation of 4:13; colligative properties of solutions, chemical thermodynamics, electrochemistry, chemical kinetics, colloidal properties, organosilicon chemistry used by the chemical industry, nuclear chemistry. GE: natural sciences.
4:15 Inorganic Chemistry 3 s.h.
Modern principles; emphasis on descriptive chemistry of the main group and transition elements, ionic and covalent chemical bonding theories, symmetry, inorganic stereochemistry.
4:112 Organic Chemistry II for Majors 3 s.h.
Continuation of 4:12 I; use of spectroscopic techniques to determine chemical structures; chemistry of carbonyl compounds, amines, ethers, amino acids, carbohydrates, and nucleic acids. Prerequisites: 4:121 or 4:123.
4:144 Physical Measurements 3 s.h.
Application of physical methods to problems; recent developments; emphasis on magnetic resonance spectroscopy. Prerequisite: 4:170.
4:209 Separations 3 s.h.
Separation science; emphasis on gas and liquid chromatography, including mobile and stationary phases, instrumentation, detection, applications and sheet method, supercritical fluid chromatography, capillary electrophoresis, solid phase extraction techniques. Prerequisites: 4:111, 4:112, and 4:171.
4:112 Advanced Inorganic Chemistry 3 s.h.
Modern principles, including crystal field/ligand field/molecular orbital theory, inorganic reaction mechanisms, coordination chemistry, bioinorganic chemistry, group 13 and 14 transition metal organometallic chemistry, solid-state inorganic chemistry.
4:171 Advanced Analytical Chemistry 3 s.h.
Emphasis on fundamental aspects of electrochemistry, atomic and molecular spectroscopy, chemical separation methods. Prerequisites: 4:112 and 4:132.
4:201 Special Topics in Inorganic Chemistry May be repeated. Prerequisite: 4:170.
4:215 Optical Spectroscopy of Biomolecules 2 s.h.
Structure, dynamics of biomolecules; modern spectroscopy; ultraviolet fluorescence spectroscopy, vibrational spectroscopy, optical activity and circular dichroism, time-resolved spectroscopy. Prerequisites: 4:111, 4:112, and 4:171.
4:172 Advanced Organic Chemistry 3 s.h.
Basic concepts from perspectives of structure, mechanism, synthesis, stereochemistry. Prerequisite: 4:125.
4:181 Fraud in the Chemical Sciences 1 s.h.
Extent and nature of fraudulent activities; methods to uncover and prevent fraud; internal and external policing mechanisms, societal impact. Prerequisite: 4:131 or 4:132 or equivalent.
4:110 Analytical Chemistry Laboratory 1 s.h.
Primarily for chemistry majors. Senior standing required.

Primarily for Graduates

4:114 Analytical Chemistry I 3 s.h.
Preparation, purification, identification, analysis of chemical compounds, principally organic compounds. Prerequisites: 4:16 or 8:20, and 4:121 or 4:123. Corequisite: 4:122 or 4:124.
4:142 Organic Chemistry Laboratory for Majors 3 s.h.
Preparation, purification, identification, analysis of chemical compounds, principally organic compounds. Prerequisites: 4:16 or 8:20, and 4:121 or 4:123. Corequisite: 4:122 or 4:124.
4:144 Physical Measurements 3 s.h.
Laboratory experiments to illustrate modern principles. Open only to chemistry majors. Prerequisites: 4:21, 4:31, and computer programming. Corequisite: 4:122 or 4:124.
4:173 Inorganic Chemistry Laboratory 3 s.h.
Preparation and characterization of a variety of inorganic, organometallic, and coordination compounds of the main group and transition elements; emphasis on synthetic techniques, methods for characterization of inorganic species. Prerequisites: 4:125 and 4:141.
4:162 Undergraduate Research 1-4 s.h.
May be repeated. Consent of adviser required.
Classics ● Liberal Arts 109

4:217 Chemical Equilibrium and solution properties 1 s.h.
Protocol for solving equilibrium problems; characterizing systems with equilibrium methods; role of solvent and solution properties on equilibrium responses. Prerequisites: 4:111, 4:112, and 4:171.

4:218 Analytical Application of Lasers 2 s.h.
Lasers and laser spectroscopy methods; basic of laser theory and operation, laser-induced processes; major laser-based spectroscopy methods, including absorption, fluorescence, ionization techniques; applications to analysis. Prerequisites: 4:111, 4:112, and 4:171.

4:221 Introduction to Organic Research 3-4 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.

4:228 Mechanisms of Organic Reactions 3 s.h.
Application of basic mechanistic concepts.

4:229 Advanced organic Preparations 3 s.h.
Preparation of complex organic compounds. Prerequisite: 4:172.

4:233 Quantum Chemistry I 3 s.h.
Quantum mechanics of chemical systems; time-independent and time-dependent perturbation theory; variational theory; Hartree-Fock theory; atomic structure and spectra. Prerequisite: 4:132.

4:234 Quantum Chemistry II 3 s.h.
Continuation of 4:233, which is prerequisite; group theory; molecular orbital and valence bond theories, Roethian procedure; electronic, vibrational, rotational, spin resonance spectroscopes; quantum statistics; current topics.

4:235 Chemical Kinetics 3 s.h.
Experimental and theoretical aspects of the dynamics of chemical reactions, from phenomenological perspective. Prerequisite: 4:232.

4:242 Physical Chemistry Topics 1-3 s.h.
Perspectives in Biocatalysis 1 s.h.

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 1-3 s.h.
Thesis work for advanced degrees. Consent of department head and adviser required.

4:291 Research Seminar 0-1 s.h.
Presentation and discussion of thesis research for advanced degrees.

Undergraduate degrees: B.A. in Ancient Civilization, Classics, Greek, Latin; minors in Ancient Civilization, Classics, Greek, Latin
Graduate degrees: M.A. in Classics, Greek, Latin; Ph.D. in Classics

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, European literature, law, history, art, philosophy, and religion. Graduates have become secondary school and university teachers, 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 in the major, of which at least 24 semester hours must be in Greek language courses. Transfer credit is evaluated on an individual basis. The following courses, or their equivalents, are required.

14:1-2 Elementary Greek 8 s.h.
14:11-12 Second-Year Greek I-II 8 s.h.
20:1-2 Elementary Latin 8 s.h.
20:16-17 Second-Year Latin I-II 8 s.h.
Two advanced Greek language courses numbered 187 or above 6 s.h.
Two advanced Latin language courses numbered 187 or above 6 s.h.
14:176 Greek Composition 3 s.h.
20:171 Elementary Latin Composition 3 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 in the major, at least 24 of which must be in Latin language courses. Transfer credit is evaluated on an individual basis. The following courses, or their equivalents, are required.

20:1-2 Elementary Latin 8 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 numbered above 187 12 s.h.

The advanced undergraduate Latin courses are 20:187-188 Latin Literature of the Republic 1-11 and 20:189-190 Latin Literature of the Empire I-II. They rotate over a two-year cycle and may be repeated or taken in any sequence.

The advanced courses consider a broad range of prose and poetry in their historical contexts.

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 in the major, at least 30 of which must be in Greek and Latin language courses. Transfer credit is evaluated on an individual basis. 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.
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 187 or above 6 s.h.
or
Two advanced Latin language courses numbered 187 or above 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. It concentrates on the ancient civilization of the Mediterranean world and draws on courses offered by various University departments. Although the major is not primarily a preparation for a graduate degree program in classics, 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, and 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 (offered only fall semesters) 3 s.h.

CLASSICS
Chair: Helena R. Dettmer
professors: Jonathan A. Goldstein, Erling B. Holtsmark
Professors emeriti: Margaret A. Alexander, Roger A. Hornby, Donald F. Jackson, Oscar E. Nybakken
Associate professors: Mary J. Depew, Helena R. Dettmer, John F. Finamore, Robert C. Ketterer
Assistant professors: Carin M. Green, Glenn R. Storey
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 20:11-12. Transfer credit is evaluated on an individual basis.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

**B.A. in Ancient Civilizations**

Note: 14:194 Seminar in Ancient Civilization is offered only during fall semesters; students must take it during their last fall semester in order to stay on the four-year graduation plan.

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

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

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

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

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

**BA in Latin**

Before the third semester begins: Latin I-II or Greek I-II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Second-Year Latin I-II and Elementary Greek I-II, or Second-Year Greek 1-11 and Elementary Latin I-II, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: sixth semester of Latin and fourth semester of Greek, or sixth semester of Greek and fourth semester of Latin, two more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: one semester of composition in either Greek or Latin (may be completed during the eighth semester) and two more courses in the major

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

**BA in Classics**

Before the third semester begins: Latin I-II or Greek I-II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: Second-Year Latin I-II and Elementary Greek I-II, or Second-Year Greek 1-11 and Elementary Latin I-II, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: second semester of Latin and third semester of Greek, or third semester of Greek and second semester of Latin, two more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: one semester of composition in either Greek or Latin (may be completed during the eighth semester) and two more courses in the major

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

**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 chosen by students and the instructor. During the first semester of Latin students present an essay every other week; at the end of the second semester they present a long paper, which is read and judged for honors by two members of the department. Requirements may be adapted for honors work in ancient civilization.

**Minors**

A minor requires a minimum of 15 semester hours in classics courses with a grade-point average of at least 2.00. Of the 15 semester hours, at least 12 must be earned in advanced courses taken at The University of Iowa. Students may earn a minor from the department in four areas: Greek, Latin, classics, and ancient civilization. The following courses are considered advanced for the minor.

**Greek**

14:11-12 Second-Year Greek I-II 6 s.h.
All courses numbered 14:176 or above

Courses numbered 14:13-117 do not count toward the minor because they are not courses in the Greek language.

**Latin**

20:16-17 Second-Year Latin I-II 6 s.h.
All courses numbered 20:171 or above 6 s.h.

Courses numbered 20:30-119 do not count toward the minor because they are not courses in the Latin language.

**Classics**

*14:11-12 Second-Year Greek 1-11 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 20:16 or above

Appropriate courses in art, religion, history, and philosophy, as selected by the major’s interdepartmental committee.

**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 14:11-12 Greek and 14:11-12 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 or 20:117 Accelerated Elementary Latin, and 20:16-17 Second-Year Latin I-II.

**Graduate Programs**

For the general requirements of the Graduate College, including the comprehensive 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 program. 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 72 semester hours of course work, including the courses listed below (27 semester hours). Students must take comprehensive and comprehensive examinations and write a dissertation.

**Required Courses**

Greek rapid readings, two semesters 6 s.h.
Latin rapid readings, two semesters 6 s.h.
Advanced 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.
Palaeography 3 s.h.
Graduate-level art courses 3 s.h.
Other interdisciplinary courses (with approval of the graduate adviser) 3 s.h.

The remaining course work is made up from courses offered in and outside of the department.

PH.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 Greek and French must be shown either by course work or exam by the close of the second year of study.

Students must file a request for the comprehensive exam at least three weeks before the date of the exam. Candidates must take the second-year exam at the end of their second year. The remaining exams may be taken in any sequence.

Second-year exam on literature and history-four hours, written
Latin literature based on reading list –three hours, written
Greek literature based on reading list-three hours, written
Special field or author (Greek) –four hours, written
Special field or author (Latin) –four 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 department, contains a good collection of coins, vases, and facsimiles in bronze from Mycenae, Pompeii, and Herculaneum. The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vergilian Society, thereby making those facilities available to its faculty and students.

Courses

Greek-for Undergraduates

14:1 Elementary Greek 4 s.h.
Ancient Greek, the language of Homer, the New Testament, modern medicine and science; focus on reading Greek, Greek culture. GE: foreign language.

142 Elementary Greek 4 s.h.
Continuation of 14:1, which is prerequisite; selections from Greek authors. GE: foreign language.

1411 Second-Year Greek I 3 s.h.
Focus on reading Greek prose authors, such as Xenophon and Plato. GE: foreign language. Prerequisite: 14:2 or equivalent.

1412 Second-Year Greek II 3 s.h.
Continuation of 14:11, which is prerequisite. Focus on reading and interpretation of Greek poetry. GE: foreign language.

Greek-for Undergraduates and Graduates

14:167 Greek Composition 3 s.h.
Review of Greek morphology, syntax, sentence structure; composition of sentences, short passages in Greek.

14187 Archaic and Classical Periods I 3 s.h.
Readings in major Greek authors of the Archaic and Classical periods. May be repeated. Consent of instructor required. Prerequisite: 14:12 or equivalent.

14188 Archaic and Classical Periods II 3 s.h.
Continuation of 14:187. May be repeated. Prerequisite: 14:12 or equivalent.

14190 Classical and Hellenistic Periods II 3 s.h.
Continuation of 14:189. May be repeated. Prerequisite: 14:12 or equivalent.

14191 Honors Readings 3 s.h.
Discussion, readings, research for a paper on Greek civilization. Open only to majors.

14192 Honors Readings 3 s.h.
Continuation of 14:191, culminating in honors thesis.

14:199 Private Assignments 1-3 s.h.
Directed reading and study with faculty member. May be repeated.

Greek-for Graduates

14:202 Advanced Reading arr.
Open only to classics graduate students.

14204 Rapid Readings in Greek I 3 s.h.

14:205 Rapid Readings in Greek II 3 s.h.

14:206 Greek Palaeography 3 s.h.

14210 Seminar Problems in Ancient Art same as H1:326.

14227 Homer 3 s.h.
 Entire Odyssey read in Greek; reports on articles, books, a wide range of older and contemporary scholarship on the poem.

14228 Ancient Rhetoric 3 s.h.

14:231 Euripides 3 s.h.

14:234 Aristophanes 3 s.h.

14236 Plato’s Philosophy 3 s.h.

14:238 Aristotle 3 s.h.

14240 Neoplatonism 3 s.h.
The Neoplatonic philosophy of Plotinus, Porphyry, Iamblichus, other later Neoplatonists.

14:241 Herodotus 3 s.h.
Book I and VII of Herodotus History examined as both history and literature; other passages and related texts as requested by students.

14:242 Thucydidies 3 s.h.

14:249 Greek Historians 3 s.h.

14:261 History of Criticism from Plato to 1700 3 s.h.

14265 Hellenistic Poetry 3 s.h.

14279 Polybios 3 s.h.

14280 Greek Novel 3 s.h.
Text, genre, literary problems.

14:281 Presocratics 3 s.h.
Fragments from presocratic philosophers read in Greek; Parmenides, Xenophen, Anaxagoras, Empedocles, later atomists, Leucipps, Democritus; physical theories such as cosmogony and cosmology; theories of matter, space, motion.

14291 Greek Thesis arr.
For Ph.D. candidates writing a dissertation.

Latin for Undergraduates

20:000 Cooperative Education Internship 0 s.h.

201 Elementary Latin 4 s.h.
Focus on reading Latin and on Roman culture. GE: foreign language.

20:2 Elementary Latin 4 s.h.
Continuation of 20:1, which is prerequisite. GE: 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. GE: foreign language.

20:16 Second-Year Latin I 3 s.h.
Focus on reading Latin prose authors, such as Caesar and Cicero. GE: foreign language. Prerequisite: 20:2 or 20:15 or two years of high school Latin.

20:17 Second-Year Latin II 3 s.h.
Focus on reading and interpretation of Roman poets, such as Vergil and Catullus. GE: foreign language. Prerequisite: 20:16 or equivalent.

Latin for Undergraduates and Graduates

20:117 Accelerated Elementary Latin 4 s.h.
One year of Latin in one semester. Offered summer sessions. GE: foreign language.

20:171 Elementary Latin Composition 3 s.h.
Review of Latin morphology, syntax, sentence structure; composition of sentences, short passages in Latin.

20:187 Latin Literature of the Republic I 3 s.h.
Prose or poetry by major authors of the republic. May be repeated. Prerequisite: 20:17 or equivalent.

20:188 Latin Literature of the Republic II 3 s.h.
Continuation of 20:187. May be repeated. Prerequisite: 20:17 or equivalent.

20:189 Latin Literature of the Empire I 3 s.h.
Prose or poetry by major authors of the empire. May be repeated. Prerequisite: 20:17 or equivalent.

20:190 Latin Literature of the Empire II 3 s.h.
Continuation of 20:189. May be 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 students. Directed reading and study with faculty member. May be repeated.

Latin for Graduates

20:202 Advanced Reading arr.
Open only to classics graduate students.

20:203 Comparative Greek and Latin 3 s.h.
Systematic comparison of classical Greek and Latin phonology and morphology; comparative material from Germanic and non-Indo-European languages; diachronic approach organised along lines of modern linguistics research.

20:204 Rapid Readings in Latin 3 s.h.

20:205 Rapid Readings in Latin 3 s.h.

20:227 Cicero’s Philosophical Works 3 s.h.
De Officiis, De Natura Deorum, Academica, De Finibus, Tusculan Disputations
Classics

20:230 Topography of Rome 3 s.h.
20:232 Advanced Vergil I 3 s.h.
20:234 Ovid 3 s.h.
Close literary reading of the 15 books of the Latin text of Ovid's Metamorphoses, emphasis on analysis of form, language, and mythological 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.
20:242 Livy 3 s.h.
Livy's work as literary creation and historical record; declaration of genrewis, prefaces and sections for which Livy had good sources.
20:250 Latin Biography 3 s.h.
Biographical works by Cornelius Nepos and Suetonius, and texts from Latin inscriptions; focus on veracity, historical content.
20:258 Tacitus 3 s.h.
Historical works read to illuminate Roman imperial period.
20:259 Tacitus Annales 3 s.h.
Entire Annales of Tacitus read in Latin; emphasis on Lati
tunality, narrative patterns. Strong background in Latin required.
20:264 Lucas 3 s.h.
Translation and interpretation of Lucan's epic, including style, metre, structure; the nature of Roman historical epic, the place of Lucan in the epic tradition.
20:265 Silver Latin 3 s.h.
20:270 Roman Satire 3 s.h.
Italic antecedents of satire, Republican satirists Lucilius and Varro; satires by Horace, Persius, and Juvenal, read and placed in their social, political, and literary contexts.
20:272 Advanced Latin Composition 3 s.h.
20:273 Epigraphy 3 s.h.
Transcriptional evidence from classical antiquity, sixth century B.C. to fourth century A.D.; readings from historically and sociologically significant inscriptions; evolution of conventions for inscribing the written word on stone.
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.
For Ph.D. candidates writing a dissertation.

Classics in English

All readings for these courses are in English; no previous knowledge of Greek or Latin is necessary.

1413 The Classical Views 3 s.h.
Ancient concept of the hero; major classical works, including Homer's Iliad and Vergil's Aeneid; Apuleius' Golden Ass. GE: foreign civilization and culture or humanities, same as 813.
14:26 Introduction to Ancient Art 3 s.h.
Art and architecture of Mediterranean civilization from Min
ton times to the age of Constantine. Consent of instructor required.
14:30 Greek Civilization 3 s.h.
History, literature, art, architecture, religion, social life ca. 3000 B.C.E. to second century B.C.E. GE: historical perspectives.
14:103 Women to Antiquity 3 s.h.
Attitudes toward women and the role of women in ancient Greek and Roman society; women's roles, male and female, and modern critics. GE: historical perspectives or humanities.
14:104 Ancient Athletics 3 s.h.
Physical surroundings and cultural context of ancient sports that form the basis for modern track and field events. Same as 28:117.
14:107 Ancient Views of Justice 3 s.h.
14:108 Greek Drama in Translation 3 s.h.
Tragedies of Aeschylus, Sophocles, and Euripides and comedies of Aristophanes in their dramatic, historical, and social contexts; ancient and modern production techniques, film adaptations, and stage productions. GE: fine arts or humanities. Same as 49:180.
14:109 Classics Motifs in the Modern Cinema 3 s.h.
Portrayal of the ancient classical world in modern films; propagation and persistence of classical themes in the genre.
14:110 Early Greek Art 3 s.h.
Architecture, sculpture, painting, minor arts from Mycenae to Hellenistic times. Same as 1H:126.
14:111 Classical Greek Art 3 s.h.
Continuation of 14:110. Same as 1H:127.
14:112 classical Mythology 3 s.h.
Ancient Greek and Roman myths, their interpretation by Western civilization; emphasis on flexibility of myth and its importance for art, literature, anthropological, psychological studies. GE: humanities. Same as 81115.
14:114 Greek Vase Painting 3 s.h.
Geometric and figure styles from ancient Greece, Asia Minor, and Italy. Same as 1H:128.
14:117 Hellenistic Art 3 s.h.
Art, religion, culture of the Greeks, Romans, Egyptians 330-30 B.C.E. Same as 1H:129.
14:194 Seminar in Ancient Civilization 3 s.h.
Open only to majors.
20:30 Roman Civilization 3 s.h.
History, literature, politics, religion, social structure from eighth century B.C. to second century A.D. GE: historical perspectives.
20:101 Greek and Latin for Vocabulary Building 3 s.h.
Analysis of unfamiliar English words through knowledge of the history and meaning of word parts. Same as 8W:101.
20:103 Medical and Technical Terminology 2 s.h.
Memorization of terms, practice on computer terminal; no formal chuses.
20:109 Art and Culture in Ancient Pompeii 3 s.h.
Art and architecture as documents of ancient society and religion in cities destroyed by Vesuvius in A.D. 79. Same as 1H:134.
20:110 Early Roman Art 3 s.h.
Roman architecture, sculpture, painting, mosaics of republican, imperial, late antique periods. Same as 1H:132.
20:111 Etruscan Art 3 s.h.
Artifacts and art from Bronze Age to Roman conquest of Elumia. Same as 1H:130.
20:112 Later Roman Art 3 s.h.
Art and architecture of imperial Rome and provinces, from the Antonines through Constantine, A.D. 138-337. Prerequisite: I H:5 or I H:26. Same as 1H:133.
20:113 Religion and Occult in Antiquity 3 s.h.
Place of occult power in early religion of Greece and Rome; influences of magical practices in other cultures on Greek-Roman culture during pre-Christian period; advent of Eastern mystery cults. GE: humanities. Same as 32:164.
20:116 The Concept of the City Rome 3 s.h.
Physical and cultural development of Rome from early republic to empire Constantine and rise of Christianity in fourth century A.D. GE: historical perspectives.
20:118 Concept of the City Rome II 3 s.h.
Rome of the Middle Ages and Renaissance.
20:119 Methods: Secondary school Foreign Language 3 s.h.
20:194 Roman Archaeology 3 s.h.
Archaeology, ethnohistory of Roman Civilization from Iron Age eighth-century occupation of Palatine Hill to end of Roman empire in the West, A.D. 476. Same as 113:194.
20:201 Topics in Comparative Romance 3 s.h.
Same as 35:207, 103:262. 3 s.h.

Communication Studies

Chair: Steve Duck
Professors: Charles F. Altman, Dudley Andrew, Leslie Baxter, David DePew, Steve Duck Bruce E. Gronbeck, Randy Hirokawa, Michael Calvin McCoy, Franklin Miller, Douglas M. Trank
Professors emeriti: Samuel L. Becker, Robert Kemp, Richard D. MacCann, Donovan J. Ochs
Associate professors: Kathleen Farrell, George Klingler, John Peters, Leighton Pierce, Lauren Rabinozitz, Eric W. Rothenbuhler
Assistant professors: Kristine Fitch, Joy Hayes, David Hingstman, Michael Saenz
Undergraduate degree: B.A. in Communication Studies; minor in Communication Studies Graduate degrees: M.A., Ph.D. in Communication Studies; M.F.A. in Film and Video Production

The Department of Communication Studies at Iowa has three closely related missions: to offer effective education for a large number of undergraduates, to provide graduate training, and to serve as a national and international leader in research and production in a family of communication specialties. By promoting the study of different media, modes, and uses of communication as social activity, the department aims to advance scholarly understanding and to enhance its students' lives.

The Department of Communication Studies, long one of the top-ranked departments of its kind in the nation, is a center for the exploration of rhetorical, social, and aesthetic dimensions of symbolic exchange. It has become an active hub for interdisciplinary programs such as the Project on the Rhetoric of Inquiry (PORO), the Institute for Cinema and Culture, and the A. Craig Baird Center for Public Advocacy and Debate. Members of its diverse, multidisciplinary faculty have been mentors to influential scholars and artists in several fields.

Undergraduate Programs

The department offers a B.A. in communication studies, with specializations in communication, media studies and film, and communication education. 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 Program requirements must have a cumulative grade-point average of at least 2.50. Correspondence and transfer study is acceptable as long as the residency requirement is met and the courses are approved by an adviser.

To be eligible for admission to the department's B.A. programs, applicants must complete, by the end of the semester in which they apply, at least 30 semester hours of approved...
An additional 12 semester hours of departmental course work approved by an adviser 12 s.h.

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 the opportunity to work in on-campus debates, with development programs designed to improve speech activities in the state, and as members of competitive intercollegiate debate teams and in individual events. Forensics scholarships are available.

Media and Film

The specialization in media studies and film 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 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. 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 with a production emphasis 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 gives them an appreciation of what goes into creating successful work and an understanding of the impact that creative and economic/political decisions may have on audiences and society at large.

To graduate with an emphasis in media studies and film, students must complete 30 semester hours in the department, including the following:

Two core area courses, one each from:
- 36D:35 Introduction to Media Production 6 s.h.
- At least three advanced courses numbered above 36D:60, 36F:50, or 36M:60 (all three with the same prefix: 36D or 36F or 36M) 9 s.h.

An additional 12 semester hours of departmental course work approved by an adviser 12 s.h.

Communication Education

The communication teaching specialization requires a minimum of 33 semester hours of course work, including the following:

Two core area courses, one each from:
- two of the four areas 6 s.h.
- Four state-required communication courses, one each in communication teaching methods, directing forensic activities, oral interpretation, and argumentation and debate 12 s.h.
- One theatre arts course 3 s.h.
- Four departmental electives 12 s.h.

To strengthen both their major and their employment opportunities, students are advised to complete a teaching minor in English, reading, or another related field, 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. The work must be approved by an adviser.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. Students who have signed the four-year graduation agreement should consult the department for details.

Students who wish to complete the media studies and film specialization with course work from production (course prefix 36D) are not eligible for the remedies of the Four-Year Graduation Plan.

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

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

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

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

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

Honors

The department encourages outstanding undergraduates to take part in the honors program. To graduate with honors in communication studies, students must maintain a grade-point average of at least 3.20, be members of the University Honors Program, and complete an honors thesis in their senior year. The thesis, which may be taken for 3-6 semester hours over two semesters, offers a unique opportunity for students to develop expertise and contribute to knowledge in a selected area. Before registering for thesis credit, candidates first must choose a faculty member to supervise their project, then have a prospectus for the project approved by that
at least 10 semester hours of dissertation credit (36:685 Ph.D. Dissertation).

Candidates must successfully complete a qualifying and a predoctoral examination in their major research area and write a substantial scholarly dissertation. In addition, doctoral students must maintain a cumulative grade-point average of at least 3.00 for all courses in the plan of study.

Individual Ph.D. programs have additional requirements. Contact the department’s director of graduate studies for additional information.

Applicants for summer session and fall semester whose application materials are received in the department by February 1 have the best chance to be admitted and receive financial aid. Admission decisions are based on 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.

**Communication Education**

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.

**M.F.A. in Film and Video Production**

The department offers the Master of Fine Arts in Film and Video Production for students who wish to pursue creative work with moving images and sound. Students in this three-year program produce a number of short works in film or video, including narrative, expository, poetic, and experimental pieces.

The department encourages a variety of approaches to the media, emphasizing rigor at all levels. Students are responsible for all aspects of their work, and are expected to develop, direct, edit, and mix their own projects.

The degree requires a minimum of 54 hours of graduate credit, including the following course work.

- 36:300 Introduction to Research 1 s.h.
- Two 200-level courses in either media theory or film theory (30:640 Colloquium in Film and Video Production, taken 4 semesters) 1-3 s.h.
- Two 100-level courses outside the department
- Three 100-level production courses (36:201 Advanced Media Production Workshop) 1-4 s.h.

After successfully completing a written comprehensive examination and passing a clearance review of creative work, students begin a final, year-long thesis project course, 36:325 Master of Fine Arts Thesis.

**Film Studies**

The graduate program in film studies leads to an M.A. or Ph.D. Typically, students who have not already earned an M.A. are admitted to the M.A. program. Students concentrate on theoretical, critical, and historical aspects of film studies.
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 also 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

Courses numbered below 200 are intended for undergraduates; those numbered above 200 are for graduate students. Graduate students also may take courses at the 100 level for credit, with approval of their committee.

General

36000 Cooperative Education Internship 0 s.h.
36:97 Senior seminar 3 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 arr.
36:249 Independent Study arr.
36:300 Introduction to Research 1 s.h.
36:385 Master’s Thesis arr.
36:633 Seminar: Rhetorical and Communication Theory Construction 3 s.h.

For Undergraduates

Communication

36C:30 Communicating its Public 3 s.h.
36C:31 Group communication 3 s.h.
36C:32 Interpersonal Communication 3 s.h.
36C:33 Practicum in Debate 1 s.h.
36C:34 Communication and Public Affairs 3 s.h.
36C:35 Business and Professional Speaking 3 s.h.
36C:36 Elements of Debate 3 s.h.
36C:37 Organizational communication Theory and Practice 3 s.h.
36C:38 Persuasive Communication 3 s.h.
36C:41 Interviewing 2-3 s.h.
36C:42 Parliamentary Procedure 1 s.h.
36C:43 Organizational Leadership 2-3 s.h.
36C:49 Undergraduate Research Practicum arr.
36C:50 Nonverbal Communication 3 s.h.
36C:59 Communication Internship arr.
36C:65 Communication Inquiry 3 s.h.
36C:70 Persuasion in Society 3 s.h.
36C:80 Communication and Contemporary Culture 3 s.h.
36C:85 Communication and Conflict 3 s.h.
36C:87 Gender Roles and Communication 3 s.h.
36C:90 Rhetoric and Politics 3 s.h.
36C:91 Topics in Communication Topics vary.
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:86 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, Priestley, Campbell, Richards, Blalock, McIlvain, Goffman,Walzlawick.

36C:125 Theories of Persuasion
3 s.h.
Focus on persuasion processes.

36C:130 Introduction to Rhetorical Criticism
3 s.h.
Rhetorical discourse, situations.

36C:133 Rhetorics of Liberalism
3 s.h.
Theoretical essays defining and defending liberalism; rhetorical texts illustrating various understandings of the concept. 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:137 Rhetoric and Public Controversy
3 s.h.
Rhetoric's role in public controversy, in particular time periods. Same as 10:141.

36C:138 The Rhetoric of Self-Justification
2-3 s.h.
Rhetorical strategies used by persons charged with personal and public shortcomings; case studies from Demosthenes through modern American politics.

36C:139 Studies in Argument
3 s.h.
Communication issues that come into play as relationships are established, developed, maintained, dissolved.

36C:141 Group Communication Processes
3 s.h.
Theories and research on the nature and function of symbolic behavior in face-to-face group settings.

36C:142 Interpersonal Communication Processes
3 s.h.
Interpretation of the bases of informal social interaction, using theory, research, conceptual analysis.

36C:151 Foundations of Rhetorical Theory and Criticism
3 s.h.
Thinkers typically identified with postmodern, structuralist, feminist, and other perspectives whose theories of language, subjectivity, and power have shaped our understanding of role, function, implications, and limits of rhetoric as means for effecting social change. Prerequisite: completion of General Education rhetoric requirement. Same as 8:174, 10:151.

36C:152 20th Century Rhetorical Theory and Criticism
3 s.h.
Rhetorical theory and criticism as discourses produced within a sociopolitical environment. Same as 10:152.

36C:153 Issues in Rhetoric and Culture
3 s.h.
Case studies of relationships between public discourse, particular cultural contexts. Same as 8:181, 10:160.

Communication Education

36D:107 Directing Forensic Activities
3 s.h.
Planning, organizing, evaluating forensic programs at secondary level; establishment of cocurricular forensic programs, preparation for teaching competitive activities, justification of cocurricular programs in secondary schools. Cumulative grade-point average of 2.50 required. Same as 78:102.

36D: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 textbooks and references, periodicals and sources of publications; contemporary communication studies; rhetoric theory, practice. Cumulative grade-point average of 2.50 required. Same as 78:160.

Media Studies and Film

PRODUCTION
36D:35 Introduction to Media Production
3 s.h.
Short projects in audio, multiple camera television, and single-camera video production; emphasis on formative principles for effective communication. Sophomore standing required. Same as 19:35.

36D:94 Audio I
3 s.h.
Concepts of sound design for radio, film, video; projects in location and studio recording techniques, editing, multitrack mixing. Prerequisite: 36D:35.

36D:95 Radio Production I
3 s.h.
The studio as a production resource; may include experience in live air-checks, multitrack recording and mixing, tape editing. Prerequisite: 36D:35.

36D:96 Television Production I
3 s.h.
Studio as a production facility, interview, news show, demonstration, other forms typical of local station or cable operation. Prerequisite: 36D:35.

36D:97 Film Production I
4 s.h.
Sixteen mm, camera operation, sound recording; production of short nonsync-sound film. Prerequisite: 36D:35.

36D:98 Electronic Field Production I
3 s.h.
Single-camera shooting, editing, with emphasis on videocassette editing, exercises oriented to fiction formats. Prerequisite: 36D:35.

36D:99 Screenwriting
3-1 s.h.
Storyboarding, sequence, dialog preparation of treatment, screenplay for theatrical or television fiction, script problems.

36D:101 Radio Production: Selected Topics
3 s.h.
Focus on a particular mode of radio production; student production of short projects in areas such as radio drama, comedy, documentary. Prerequisite: 36D:95.

36D:102 Radio Production Workshop
3 s.h.
Independent creative work. Prerequisite: 36D:95.

36D:111 Interactive Multimedia
3 s.h.
Experience in conceiving and authoring interactive presentations typical of those delivered via CD-ROM; related issues, such as the author/user relationship in social and institutional contexts (e.g., business, game playing, entertainment, education).

36D:112 Television Production: Commercials
3 s.h.
Design strategies, audio production, decor, offline editing with computer-assisted on-line assembly; experience creating short commercials in the studio. Prerequisite: 36D:96.

36D:113 Television Production Drama
3 s.h.
Directing and staging, single-camera television production; developing competent production teams for production management, design problems; blocking and shooting; post-production work. Prerequisite: 36D:96.

36D:121 Media Production: Selected Topics
4 s.h.
Student productions focusing on a particular genre, issue, or process; 16mm, video, or audio, such as experimental film or video, collaborative projects, music video, and so forth. Prerequisites: 36D:97 and another course numbered above 36D:99.

36D:122 Media Production: Animation/ Optical Printing
3 s.h.
Experimental techniques in 16mm film or video animation and image manipulation. Prerequisite: 36D:97 or 36D:98.

36D:123 Media Production: Image Design
4 s.h.
Design strategies, techniques, and technologies utilized in moving image production; emphasis on generic lighting practices, composition; short projects in film, videotape.

36D:124 Film Production The Seven-Minute Film
4 s.h.
Processes and approaches to the short film; student production of a seven-minute, sync sound, mixed and printed 16mm film. Prerequisites: 36D:97 and another course numbered above 36D:99.

36D:125 Screenwriting: Short Forms
3 s.h.
Exercises and projects in writing, developing, and workshopscreenplays for short film or video; budgeting, location scouting, other preproduction activities. Prerequisite: 36D:97.

36D:131 Sound Design for Media Production
4 s.h.
Concepts and techniques in sound design for film and video; exercises, projects in sound/image relationships using location recording equipment and a digital audio workstation for editing, mixing. Prerequisite: 36D:97 or 36D:98.

36D:132 Electronic Field Production II
3 s.h.
Single-camera video production; experience on teams producing medium-length video programs; emphasis on location shooting; may include fiction, documentary. Prerequisite: 36D: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); application of theoretical issues; individual productions. May be repeated. Consent of instructor required.

36D:142 Issues in MM/Video Production
1-4 s.h.
Individual film; study of problems, screenings of work in progress, criticism. May be repeated. Prerequisites: 36D:98 or 36D:118 or 36D:124.

Film

36F:1 Introduction to Film Analysis
3 s.h.
Methods; emphasis on classic narrative works from American and European traditions; shot by shot breakdown, narrative segmentation, autor, genre. Same as 48:60.

36F:2 Survey of Film
3 s.h.
Film history, theory, criticism; emphasis on technology, technique, cultural function; screenings of narrative, documentary, experimental films. GE: humanities.

36F:10 Contemporary Cinema
3 s.h.
Current American and foreign cinema; types, styles, directors; relationships between movies and film industries; cultural contexts; the movie going experience.

36F:11 Films and Screenplays
3 s.h.
Structure of films in a variety of formats, from canonical films examined with the aid of their scripts to promising screenplays that never reached the screen or did so in altered form. Same as 8:11.

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, roles of minority groups in filmmaking.

36F:20 U.S. Film
3 s.h.
Examination of characteristic films across several decades as way of understanding the film industry and its social and artistic effect.

36F:21 European Film
3 s.h.
Survey of German Expressionism, Soviet constructivism, Italian Neorealism, the new German film; history of cinematic art in cultural, social, and political contexts. GE: 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 historical 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.
American films from 1920s to 1980s, with emphasis on images of sexes, how images relate to society; theories of cinema and sexual differences. Same as 8:12.

36F:70 Styles and Genres
3 s.h.
Film types (gangster, science fiction, Italian comedy, etc.); validity of treating films in such groups. May be repeated.

36F:71 Film Authors
3 s.h.
Study of a major director or comparison of two or three directors; film analysis and writing; creativity as an industrial medium, biography’s relation to criticism, psychology of style. May be repeated.
36F:81 Film and Literature 3 s.h.
Adaptation of films from novels and plays; signifying processes of these art forms and the cultural work they perform. Same as 8:81, 48:81.

36F:90 Senior 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.

36F:101 Topics in U.S. Silent Film 3 s.h.
Specific issues or periods in U.S. silent film. May be repeated.

36F:102 Topics in U.S. Sound Film 3 s.h.
Specific issues or periods in U.S. sound film. May be repeated.

36F:103 Topics in Contemporary Film 3 s.h.
Specific issues or periods in contemporary film. May be repeated.

36F:104 Topics in European Film 3 s.h.
Specific issues or periods in European film. May be repeated.

36F:105 French Cinema 3 s.h.
History of film; French culture, film analysis, relationship of filmmakers to politics, religion, and so forth. GE: foreign civilization and culture. Same as 9:147.

36F:106 Topics in Asian Cinema same as 39:145.

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.
Interplay of cinema with other aspects of important cultural periods or movements, (e.g., those of Weimar, Germany and France between the wars, Depression America); emphasis on living role of cinema in history. Same as 48:111.

36F:112 Proseminar in Cinema and Culture 1-2 s.h.
Institute for Cinema and Culture symposium topic. Same as 48:112.

36F:113 Ethnographic Approaches to Film 3 s.h.
Relation of film to process of understanding groups of peoples and foreign societies; anthropological films; cinema's place 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, ethnicity.

36F:122 Film Aesthetics 3 s.h.
Specific aspect(s).

36F:131 Film and Art Movements 3 s.h.
Relationship between cinema, various art movements.

36F:150 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 (e.g., novel, theater, a plastic art, a performing art. Same as 8:172,48:172.

MEDIA

36M:25 Mass Media and Mass Society 3 s.h.
Processes and effects of mass communication, how communication media operate in the United States; how mass communication scholars develop knowledge. GE: social sciences.

36M:35 History of Broadcasting 3 s.h.
Technical, economic, legal development of broadcasting in the United States; emblem in social institutions such as family, nation, consumer culture.


36M:46 Broadcast Programming 3 s.h.
Programming practices, strategies, and operating procedures of radio and television stations; audience research, program acquisition, scheduling, formats, syndication, promotion. Prerequisite: 36M:45.

36M:47 Media, Advertising and Society 3 s.h.
Significance and practice of media advertising in contemporary culture; development of advertising; creation and presentation to the consumer; the creative process; marketing to ethnic, class, gender groups; selection and purchase of media space. Prerequisite: 36M:45.

36M:48 Broadcast Management Budgeting, staffing, audience research, programming promotion, sales, labor relations, government regulation, community responsibility. Prerequisite: 36M:45.

36M:49 Writing for Television and Radio 3 s.h.
Basic writing skills for broadcast media.

36M:50 Practicum in Broadcasting and Film arr.
Internship in professional mass communication organizations. Open only to majors. Consent of instructor required.

36M:65 Gender, Sexuality, and Media 3 s.h.
Construction of gender identity and sexuality in media representations, organizations, audiences. Prerequisite: 36M:25 or 36M:35.

36M:76 TV and Radio Documentary 3 s.h.

36M:78 Cultural History of Radio 3 s.h.
Development of radio as a sociocultural system. Prerequisite: 36M:25 or 36M:35.

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: 56M:25 or 36M:45.

36M:81 Television Criticism 3 s.h.
Television's cultural impact; TV representation and narration; roles of industry, audience, and textual conventions in defining the medium. Prerequisite: 36M:25 or 36M:35 or 36M:45.

36M:85 Cultural Approaches to Mass Communication 3 s.h.
Methods of conceiving, observing and analyzing media artifacts, processes, politics. Prerequisite: 36M:25 or 36M:35 or 36M:40.

36M:86 The Production of Culture 3 s.h.
Organization, 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 Issues or problems, theories surrounding mass media. Prerequisite: 36M:25 or 36M:35 or 36M:45.

36M:95 Mass Communication: Processes and Effects 3 s.h.
Research on mass media effects, with emphasis on audience research in the United States; qualitative and quantitative methods for studying the impact of media on individuals, communities. Prerequisite: 36M:25.

36M:120 Communication and Popular Culture 3 s.h.
Roles that communication media and popular cultural practices play in building public communities, private identities; may include nationalism and national identity in the United States. Prerequisite: 36M:25 or 36M:35.

36M:130 Topics in History of Media History of electronic media, related communication systems; films varies. Prerequisite: 36M:35.


36M:134 Topics: Cultural History of Advertising History of advertising as cultural, social, economic, or communication system; focus varies. Prerequisite: 36M:35.


36M:177 Music, Media and Popular Culture Relationship between media systems and popular music, primarily in the United States; historical development of the communications industry, resulting impact on contemporary culture; listening skills. Same as 22:177, 33:177.

36M:183 Criticism of Broadcasting Production, reception, artifacts, and social organization of broadcasting examined and evaluated; critical approaches to radio and television. Prerequisite: 36M:25 or 36M:35 or 36M:45.

36M:187 Radio, Records, and Popular Music Representative topics from history, institutions, technologies, aesthetics, audiences; uses and effects of radio, records, and popular music. Prerequisite: 36M:35 or 36M:45.

36M:191 Philosophy of Media Twentieth-century American theories and philosophical background, research on media and society may include media and democracy, the arts, children, society, consumer culture. Prerequisite: 36M:25 or 36M:35 or 36M:45.

36M:195 Contemporary Issues in Media Studies 2-3 s.h.
Issues involving electronic media.

For Graduates

Communication Education

36:250 Colloquium: Teaching Rhetoric arr.
Exploration of literature and problems involved in teaching composition, public speaking, reading. Same as 8:450, 10:350.

Interpersonal and Small Group Communication

36:321 Organizational Communication: Theory and Research 3 s.h.
Major concepts; integration of communication theories, perspectives with organizational theories, perspectives.

36:322 Group Communication: Theory and Research 3 s.h.
Major concepts in small-group communication; nature, function of communication processes in small-group settings; theoretical framework for synthesis, critical evaluation of group communication research.

36:323 Research Methods in Communication 3 s.h.
Primary methods used to conduct research on interpersonal and group communication, including quantitative, qualitative methods.

36:324 Communication Theory 3 s.h.
Basic issues in philosophy of social science; primary theories of interpersonal and group communication.

36:325 Interpersonal Communication: Theory and Research 3 s.h.

36:327 Persuasion Theory and Research 3 s.h.
Major historical and recent approaches to persuasion; emphasis on social/scientific approaches; may include dialogical approaches.

36:328 Relational communication: Theory and Research 3 s.h.
Communication in initiation, development, maintenance, breakdown, repair of social and personal relationships; open communication, self-disclosure; communicative skills; process models of relationships.

36:329 Ethnography of Communication 3 s.h.
Research and theory on face-to-face communication, from ethnography of communication perspective.

36:330 Family Communication 3 s.h.
Theory and research on communication among and between family members (parents and children, marital partners, siblings); quantitative and qualitative research.

36:350 Research Practicum arr.
Individual projects.

36:623 Seminar: Ethnography and Dialectics in Interpersonal Communication 3 s.h.
Methods used by communication ethnographers, including participant observation, field interviewing.

36:630 Seminar: Relational Communication 3 s.h.

36:631 Seminar: Topics in Communication Research Topics vary.

36:632 Seminar: Group Communication 3 s.h.

36:634 Seminar: Interpersonal communication Recent theoretical advances, research.

Communication Studies ● Liberal Arts 117
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>36:636</td>
<td>Seminar: Persuasion</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36:637</td>
<td>Seminar: Constructs, Communication and Identity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36:638</td>
<td>Seminar: Transportation and Change in Rhetoric, especially Burke, and social community, especially Mead.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36:639</td>
<td>Seminar: Traveling in Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36:640</td>
<td>Seminar: Advanced Topics in Persuasion</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36:641</td>
<td>Seminar: Culture and Communication</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Media Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>36M:221</td>
<td>Media Criticism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36M:231</td>
<td>Theories of Mass Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36M:240</td>
<td>Women and Television in American Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36M:303</td>
<td>Media Industry Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36M:335</td>
<td>Media and Modernity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36M:348</td>
<td>The Audience Experience</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36M:349</td>
<td>Topics in Mass Communication</td>
<td>1.3 s.h.</td>
</tr>
<tr>
<td>36M:350</td>
<td>Communication and Community</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36M:360</td>
<td>Studies in Popular Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36M:370</td>
<td>Nationalism as a Communication Process</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36M:623</td>
<td>Seminar: Mass Communication</td>
<td>1-4 s.h.</td>
</tr>
<tr>
<td>36M:625</td>
<td>Seminar: Media History and Criticism</td>
<td>1-4 s.h.</td>
</tr>
</tbody>
</table>

**Film Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>36F:219</td>
<td>Studies in Film Production</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>36F:250</td>
<td>Writing About Cinema</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>36F:263</td>
<td>Advanced Film Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36F:265</td>
<td>Advanced Film History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36F:276</td>
<td>Narrative Modes</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36F:277</td>
<td>Cinema and Historiography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36F:300</td>
<td>American Film and American Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36F:303</td>
<td>Topics in Latin American Film</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36F:305</td>
<td>Studies in Sound and Image</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36F:605</td>
<td>Seminar: National Cinema</td>
<td>1-4 s.h.</td>
</tr>
<tr>
<td>36M:201</td>
<td>Advanced Media Production Workshop</td>
<td>1-4 s.h.</td>
</tr>
<tr>
<td>36M:325</td>
<td>Master of Fine Arts Thesis</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>36M:640</td>
<td>Colloquium in Film and Video Production</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>36R:230</td>
<td>Rhetorical Criticism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36R:231</td>
<td>Greek and Roman Public Address</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:233</td>
<td>British Public Address</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:235</td>
<td>American Public Address: Colonial America Through Reconstruction</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:236</td>
<td>American Public Address: Gilded Ages Through Vietnam</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:301</td>
<td>Classical Rhetoric</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:302</td>
<td>Modern Rhetoric</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:303</td>
<td>Rhetoric and Philosophy</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:304</td>
<td>Rhetoric and Social Theory</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:305</td>
<td>Rhetoric and Argument Theory</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:405</td>
<td>Communication and Dramaturgy</td>
<td>1-4 s.h.</td>
</tr>
<tr>
<td>36R:406</td>
<td>Studies in Political Communication</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:605</td>
<td>Seminar: Rhetoric of Inquiry</td>
<td>2-4 s.h.</td>
</tr>
<tr>
<td>36R:606</td>
<td>Seminar: Contemporary Rhetoric</td>
<td>2-4 s.h.</td>
</tr>
</tbody>
</table>

**Comparative Literature**

Chair: Steven Ungar
Professors: J. Dudley Andrew, Stavros Deligiorgi, Rudolf E. Kuenzli, Alan F. Nagel, Steven Ungar, Daniel Weisbourd
Associate professors: Sabine Golz, Thomas E. Lewis, Adriana Mendez Rodenas, Maureen Robertson
Assistant professors: Anne Donadey, Mitsuhiro Yoshimoto
Undergraduate degree: B.A. in Comparative Literature; minor in Comparative Literature
Graduate degrees: M.A., Ph.D. in Comparative Literature; M.F.A. in Translation

The Program in Comparative Literature presents literature as the subject of international and interdisciplinary study and provides a basis for intensive work in literature, literary theory, and critical method.

The program encourages study in comparative arts, particularly with emphasis on cinema, where the program’s resources are especially strong. Students and faculty have easy access to the resources in the Institute for Cinema and Culture (see the Communication Studies Special Resources at Iowa sections of the Catalog).

In addition to its own faculty, the program calls upon faculty members in other areas, including women’s studies, classics, Asian languages and literature, communication studies, English, film, French and Italian, German, history, Spanish and Portuguese, Russian, and theatre arts.

**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, law, and psychology.

Majors in comparative literature do not proceed through a strictly 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 Program requirements for the B.A. degree, majors complete a minimum of 36 semester hours in courses distributed across three areas as follows:

- Students must earn at least half of all credit in the major while in residence at The University of Iowa. These must include the 21 semester hours of required Comparative Literature courses.

  **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 Program 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.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Because the major requires competency in a language in which the student will take advanced work, the student may need to acquire this language competency through course work early in the plan. Such course work is not reflected in these checkpoints.

- Before the third semester begins: at least one-quarter of the semester hours required for graduation
- Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation
- Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation
- Before the eighth semester begins: at least nine courses in the major
- During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Honors**

To graduate with honors in 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.

**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.

**Doctor of Philosophy**

Students seeking a Ph.D. 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. AU 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. Translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral exam centers on the dissertation and its background.

**Admission**

The study of literature across linguistic 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 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  o s.h.
48:22 World Film  3 s.h.
Same as 36F:22.
48:40 Major Texts in World Literature I  3 s.h.
Reading and analysis of major literary texts from Homer to the Renaissance in chronological sequence; emphasis on interrelationship of literature and history. GE: humanities. Offered fall semesters. Same as 8:40.
48:41 Major Texts of World Literature II  3 s.h.
Reading and analysis of major literary texts from Neoclassicism to 1900, in chronological sequence; emphasis on interrelationship of literature and history. GE: humanities. Offered spring semesters. Same as 8:41.
48:55 Issues in Comparative Literature  3 s.h.
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, short-shot-breakdown, narrative segmentation, auteur, 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 8W:80.
48:81 Film and Literature  3 s.h.
Same as 8:81, 36F:81.
48:95 Undergraduate Seminar  3 s.h.
Focus on a significant text or critical problem. For seniors. Same as 8:95.
48:98 Honors Tutorial  arr.
48:99 Individual Study  arr.
48:100 Introduction to Criticism and Theory  3 s.h.
Critical approaches to the phenomenon of literature. For juniors. Same as 8:100.
48:106 European Literature of the Nineteenth Century  3 s.h.
International and national perspectives on literary movements, works, authors before 1900. Same as 8:106.
48:110 Comparative Arts  3 s.h.
Cultural and aesthetic issues arising from side-by-side investigation of several art forms, including literature, cinema, painting, music, opera, architecture; periods, schools, styles, and their theories.
48:111 Cinema 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.
48:112 Proseminar in Cinema and Culture  1-2 s.h.
Focus on symposium topic of Institute for Cinema and Culture. Same as 36F:112.
48:113 Literary Genres in European Literature I  3 s.h.
How generic definitions contribute to the understanding of related literary works; focus on one or more genres [e.g., epic, romance, comedy, historical novel]. Same as 8:113.
48:115 Literary Genres in European Literature n Continuation of 48:113. Same as 8:115.
48:122 The Experience of Politics  2-4 s.h.
Political experience presented in biographical and autobiographical works. Same as 35:122.
48:127 Contemporary Scene in Poetry Same as 8:127. 3 s.h.
48:136 Philosophy of Literature Same as 26:136. 3 s.h.
48:140 Contemporary Scene in Fiction Same as 8:140. 3 s.h.
48:141 Chinese Literature: Poetry Same as 39:141. 3 s.h.
48:142 Modern Japanese Fiction in Translation Same as 39:142. 3 s.h.
48:150 Literature and Society Same as 8:150. 3 s.h.
48:151 Literature and Anthropology Same as 8:151, 113:109. 3 s.h.
48:153 Latin American Studies Seminar  3 s.h.
48:158 East-West Literary Relations Same as 39:158. 3 s.h.
48:160 Cultural Identity in Caribbean Literature Same as 35:175. 3 s.h.
48:163 Post-colonial Literatures by Women Same as 35:176. 3 s.h.
48:170 Rise of the Russian Novel Same as 41:170. 3 s.h.
48:172 Narrative and the Cinema Same as 8:172, 36F:172. 3 s.h.
48:177 Literature and Art Same as 8:177. 3 s.h.
48:178 Topics in French Studies II Prerequisite: 9:111 or 9:112 or equivalent Same as 9:178. 3 s.h.
48:182 Asian-American Literature Immigration history, ethnic identities, contemporary American culture as represented in literary texts and films by Asian-Americans. Same as 39:182.
48:190 Augustine to Boccaccio Same as 8:190. 3 s.h.
48:191 International Literature Today Same as 8:191. 3 s.h.
48:193 Comparative Cultural Criticism Same as 8:193. 3 s.h.
48:194 Introduction to Feminist Criticism Same as 8:194. 3 s.h.
48:196 The Daring Ones: Cuban American Literature Experiences of Cuban exiles in the United States, emergence of a literature based on dispossession, marginality, memory of island past. GE: cultural diversity. Prerequisite: 8G:1 or equivalent. Same as 35:145.
48:199 Individual Study arr.
48:201 Theory and Textuality For advanced B.A. candidates with international and comparative literary projects, and M.A. candidates in comparative literature. 3 s.h.
48:202 Comparative Methods Study of culture in interdisciplinary and multinational contexts, including historiography, ethnography, anthropology, philosophy, psychoanalysis, rhetoric, feminism, cultural studies, postcolonialism; discourse practices in context of multiple theories, comparative perspective. 3 s.h.
48:211 Comparative Stylistics Same as 9:211. 3 s.h.
48:217 Introduction to Contemporary Literary Theory Same as 8:217. 3 s.h.
48:219 Contemporary Translation Theory Survey Same as 8W:219, 35:219. 3 s.h.
48:223 Romantic Literature Same as 8:223. 3 s.h.
48:241 Seminar in Chinese Literature Same as 39:241. 3 s.h.
48:251 Critical Theory and the Non-West Relevance of critical theory for study of non-West; theory of modernity, imperialism, colonialism. Same as 39:251. 3 s.h.
48:257 Renaissance Lyric Same as 8:257. 3 s.h.
48:258 Nation and Narration in Latin America Same as 39:258. 3 s.h.
48:263 Issues in Translation Contemporary and historical theories. Same as 39:263. 3 s.h.
48:265 History of Criticism: Plato to 1700 Same as 8:265. 3 s.h.
48:267 History of Criticism: 1700-1900 Theory of literature; emphasis on philosophical implications of literary theory from classical antiquity through the Renaissance. Same as 8:267, 14:267, 49:267. 3 s.h.
48:268 History of Criticism: 1900-Present Theory of literature from neoclassicism to contemporary critical movements. Same as 8:268, 49:268. 3 s.h.
48:269 Issues in Contemporary Literary Criticism Same as 8:269. 3 s.h.
48:274 Literature and Psychoanalytic Theory Major psychoanalytical theories and their critical application to literary works; readings of literary works, literary analyses by psychoanalysts, psychoanalytic analyses by literary critics. Same as 8:274. 3 s.h.
48:285 Feminist Criticism Same as 8:285. 3 s.h.
48:286 Fourteenth-Century Literature Same as 8:286. 3 s.h.
48:276 Narrative Modes Same as 8:276, 36F:276. 3 s.h.
48:284 Types of Modern Criticism Same as 8:284. 3 s.h.
48:285 Vernacular Narrative, 13-17th Centuries Readings in 14th through 17th-century texts from European and Asian traditions; emphasis on literary, socio-economic, ideological contexts in which vernacular narrative was produced. Same as 39:285. 3 s.h.
48:313 Modern Studies Same as 8:313. 3 s.h.
48:314 Postmodern Studies Same as 8:314. 3 s.h.
48:382 Literary Genres and Modes Same as 8:382. 3 s.h.
48:402 Seminar: Medieval Literature Same as 8:402. 3 s.h.
48:407 Seminar: Renaissance Literature Same as 8:407. 3 s.h.
48:409 special Projects For doctoral candidates. 3 s.h.
48:455 Seminar Post-Colonial Studies Same as 8:455. 3 s.h.
Students may declare the B.A. in computer science at any time on or after admission to the University.

Students may apply for admission to the B.S. program after completing the first 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 the courses required for the B.A. or B.S. in computer science). All computer science students are advised at the Undergraduate Academic Advising Center. Students who are being advised at the advising center also may avail themselves of walk-in/call-in hours offered by computer science faculty.

Advancement

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 Program requirements for this degree are stated in the College of Liberal Arts section of the Catalog. Courses that satisfy General Education Program requirements, if chosen carefully, also may satisfy the departmental natural science sequence requirement as described below.

Students complete all department requirements for the B.A. In addition, they complete the following three requirement:

One of these:

22M:72 Elementary Numerical Analysis 3 s.h.
22S:120 Probability and Statistics 4 s.h.
22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.

Another probability and statistics course with a calculus prerequisite, as approved by the computer science adviser (if 22M:72 is used to fulfill this requirement, it may be used as an advanced course)

A natural science sequence acceptable toward a major in that science (approved sequences are listed under “Natural Science Sequences,” below)

Two advanced courses selected from the following list

ADVANCED COURSES

22C:55 Elementary Numerical Analysis 3 s.h.
22C:36 Topics in Computer Science 3 s.h.
22C:39 Honors in Computer Science (may be counted only once as an advanced course) 3 s.h.
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:125 Data: Abstractions, Types, and Structures 3 s.h.
22C:127 Introduction to Compiler Construction 3 s.h.
22C:132 Parallel Programming 3 s.h.
22C:135 Introduction to Computation Theory 3 s.h.
22C:144 Database Management Systems 3 s.h.
22C:145 Artificial Intelligence 3 s.h.
22C:151 Computer Graphics 3 s.h.
22C:153 Design and Analysis of Algorithms 3 s.h.
22C:160 Geometric and Physical Modeling 3 s.h.
22C:161 Robotics 3 s.h.
22C:162 Computer Vision 3 s.h.
22C:167 Theory of Graphs 3 s.h.
22C:178 Computer Communications 3 s.h.
22C:180 Fundamentals of Software Engineering 3 s.h.
22C:181 Formal Methods in Software Engineering 3 s.h.
22C:182 Software Engineering Languages and Tools 3 s.h.
22C:183 Software Engineering Project 3 s.h.
22C:193 Topics in Programming Languages 3 s.h.
22C:194 Topics in Systems and Networks arr.
22C:195 Topics in Software Engineering arr.
22C:196 Topics in Computer Science (if repeated, may be counted only once as an advanced course) arr.
22C:198 Individual Programming Projects (if repeated, may be counted only once as an advanced course) arr.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
22M:174 Optimization Techniques 3 s.h.
22M:176 Finite Element Method 3 s.h.

These courses cannot be taken pass/fail. 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 7-8 semester hours. Students often choose courses that also will satisfy the natural sciences General Education Program 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 (lab) 4 s.h.
- 29:62 General Astronomy (lab) 4 s.h.

**Biology/Chemistry**
- 2:10 Principles of Biology I (lab) 4 s.h.
- 4:13 Principles of Chemistry I 3 s.h.

**Botany**
- 2:1 Introduction to Botany (lab) 4 s.h.
- 2:100 Land Plants: An Evolutionary Survey (not approved for General Education) 4 s.h.

**Chemistry**
- 4:13 Principles of Chemistry I 3 s.h.
- 4:14 Principles of Chemistry II 3 s.h.
- 4:16 Principles of Chemistry Lab (lab) 2 s.h.

**Physics**
- One of these sequences: 29:11-12 College Physics (this option not discouraged) 8 s.h.
- 29:17-18 Introductory Physics I-II (lab) 8 s.h.
- 29:27-28 Physics I-II 8 s.h.

### Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

**Bachelor of Arts**

Before the third semester begins: math through calculus I, two programming courses, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through linear algebra, two more courses in the major, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: at least one more course in the major

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

**Bachelor of Science**

These checkpoints do not include the required natural science sequence, in which students usually enroll as they fulfill the General Education Program requirement in natural science.

Before the third semester begins: math through calculus I, two programming courses, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through linear algebra, at least two more courses in the major, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: at least two more courses in the major

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

### Honors

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 22C: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 16 semester hours of computer science courses, including 22C:16 and 22C:17. Students may not count 22C:001, 22C:10, 22C:12, 22C:110, or 22C:112. Only one of these may be included: 22C:7, 22C:9, 22C:100, or 22C:109. Typical course sequences for the minor are as follows:

- 22C:5, 22C:7, 22C:16, 22C:17, and 22C:19
- 22C:5, 22C:9, 22C:16, 22C:17, and 22C:19
- 22C:5, 22C:16, 22C:17, 22C:18, and 22C:19
- 22C:16, 22C:17, 22C:18, 22C:19, and 22C:21
- 22C:16, 22C:17, 22C:18, 22C:19, and 22C:31

### 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 a case, 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 (total of 30 s.h.).

- 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 for software engineering subtrack students) 9 s.h.
- Approved elective courses (except for software engineering subtrack students) 6 s.h.

Elective courses are chosen 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 exposure and competence in computer science. In particular, some experience with projects involving extensive programming should be included.
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 (total of 30 s.h.):

- **22C:180 Fundamentals of Software Engineering** 3 s.h.
- **22C:181 Formal Methods in Software Engineering** 3 s.h.
- **22C:182 Software Engineering Languages and Tools** 3 s.h.
- **22C:183 Software Engineering Project** 3 s.h.
- **22C:189 Software Engineering Project Management** 1-3 s.h.

Four computer science courses listed under “Master of Science” (22C:116, 22C:122, 22C:123, and 22C:135) are required. A 200-level 22C course 3 s.h. is also required. Students electing the software engineering subtrack may apply up to 6 credits of the following courses toward the minimum of 30 semester hours required for the M.S.

### 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 (total of 30 s.h.).**

- **22C:180 Fundamentals of Software Engineering** 3 s.h.
- **22C:181 Formal Methods in Software Engineering** 3 s.h.
- **22C:182 Software Engineering Languages and Tools** 3 s.h.
- **22C:183 Software Engineering Project** 3 s.h.
- **22C:189 Software Engineering Project Management** 1-3 s.h.

Four computer science courses listed under “Master of Science” (22C:116, 22C:122, 22C:123, and 22C:135) are required. A 200-level 22C course 3 s.h. is also required. Students electing the software engineering subtrack may apply up to 6 credits of the following courses toward the minimum of 30 semester hours required for the M.S.

### 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 either to begin the Ph.D. program or to be eligible to receive 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** 3 s.h.

Students also must complete at least 18 semester hours of 200-level computer science course work in addition to 22C: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, or 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 both 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. nonthesis final examination, but the latter can not substitute for the former.

### COMPREHENSIVE EXAM

After completing the qualifying examination, students identify a specialty area and conduct research in that 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 prepare a written proposal for 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 computer use for problem solving is useful, and often prerequisite, to advanced study and research in many disciplines. For most students, the two-semester sequence 22C:106 Introduction to Programming/22C:107 Programming Techniques and Data Structures is recommended. Students in fields in which other programming languages are used heavily may find 22C:100 Introduction to Computing with FORTRAN, 22C:109 Programming with COBOL, or 22C:110 Programming with C more appropriate.

### Courses

#### Primarily for Undergraduates

- **22C:000 Cooperative Education Training Assignment** 0-9 s.h.
- **22C:020 Computer Organization and Architecture** 4 s.h.
- **22C:117 Introduction to Programming** 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** 3 s.h.
- **22C:200 Cooperative Education Training Assignment** 0-9 s.h.
- **22C:210 Computer Literacy** 3 s.h.
- **22C:220 Data Structures and Algorithms** 3 s.h.
- **22C:221 Data Structures and Algorithms** 3 s.h.
- **22C:223 Programming Language Concepts** 3 s.h.
- **22C:224 Programming Language Concepts** 3 s.h.
- **22C:225 Problem Solving and Computing** 3 s.h.
- **22C:226 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. GE: quantitative or formal reasoning.**
- **22C:232 Introduction to computing with FORTRAN** 3 s.h.
- **22C:233 Introduction to computing with FORTRAN** 3 s.h.
- **22C:234 Introduction to computing with FORTRAN** 3 s.h.
- **22C:235 Introduction to computing with FORTRAN** 3 s.h.
- **22C:236 Introduction to computing with FORTRAN** 3 s.h.
- **22C:237 Introduction to computing with FORTRAN** 3 s.h.
- **22C:238 Introduction to computing with FORTRAN** 3 s.h.
- **22C:239 Introduction to computing with FORTRAN** 3 s.h.
- **22C:240 Introduction to computing with FORTRAN** 3 s.h.
- **22C:241 Introduction to computing with FORTRAN** 3 s.h.
- **22C:242 Introduction to computing with FORTRAN** 3 s.h.
- **22C:243 Introduction to computing with FORTRAN** 3 s.h.
- **22C:244 Introduction to computing with FORTRAN** 3 s.h.
- **22C:245 Introduction to computing with FORTRAN** 3 s.h.
- **22C:246 Introduction to computing with FORTRAN** 3 s.h.
- **22C:247 Introduction to computing with FORTRAN** 3 s.h.
- **22C:248 Introduction to computing with FORTRAN** 3 s.h.
- **22C:249 Introduction to computing with FORTRAN** 3 s.h.
- **22C:250 Introduction to computing with FORTRAN** 3 s.h.
22C:31 Digital Systems and Computers 3 s.h.
Design, operation of a general purpose digital computer; logic gates, and techniques for designing combinatorial and sequential circuits; use them, combinational components (multiplexers, shift units, arithmetic units, logic units); sequential components (registers, counters, memory circuits); CPU-design (bus architectures, control unit design, instruction set architecture, microprogramming, interrupt hardware, I/O techniques); serial and parallel I/O interfaces; external devices (including disk drives); cache memory, virtual memory; RISC architecture.
Corequisite: 22C:18.

22C:32 Introduction to Systems Software 3 s.h.
Design, implementation of system software; program-execution environment; data structures in terms of operating systems functions (command interpretation, process management, memory management, message management, file-management, I/O); cache memory, virtual memory; RISC architecture.

22C:55 Elementary Numerical Analysis 3 s.h.
Numerical solution of polynomials, general algebraic equations; numerical solution of simultaneous linear equations; matrix operations; evaluation; premise; fittingMethods; interpolation; polynomials; numerical solution of ordinary differential equations; detailed error analysis of several techniques; prerequisite: 22C:19, 22C:21, and 22M:27; or consent of instructor.

22C:36 Topics in Computer Science 2-3 s.h.
Composition management; may be repeated. Consent of instructor required.

22C:99 Honors in Computer Science 2 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 2 s.h.
See 22C:7.

22C:106 Introduction to Programming 3 s.h.
See 22C:16. Programming program design techniques; simple data types, variables, expressions.

22C:107 programming Techniques and Data Structures 3 s.h.
Continuation of 22C:106; see 22C:17. Prerequisite: grade of C- or higher in 22C:106.

22C:108 Computer Organization and Assembly Language Programming 3 s.h.
System architecture, design of C- or higher in 22C:107.

22C:109 Programming with COBOL 2 s.h.
See 22C:9. Prerequisite: 22C:106 or consent of instructor.

22C:110 Programming with C 2 s.h.
Prerequisite: a basic course in programming taught in a language other than C or consent of instructor.

22C:112 Programming in C++ 2 s.h.
See 22C:12. Open only to non-computer science graduate students. Prerequisite: grade of C- or higher in 22C:110 or consent of instructor.

22C:152 Computer Graphics Laboratory 1 s.h.
Use of such graphics languages such as C, PHIGS, Starbase, X; buffering, item buffering, kd-trees, other ray tracing speed-up techniques; advanced shading, texture mapping. Corequisite: 22C:151.

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, memory systems — cache, main and secondary memory, virtual memory; I/O organization, software interface, inter-process communication, systems programming; high performance computers; array and vector processors, share memory and distributed-memory multiprocessors; case studies from historic computer organizations. Prerequisite: grade of C- or higher in 22C:31 and 22C: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, denotational, algebraic techniques; proofs of program correctness, termination; semantic models of logic programming. Prerequisite: grade of C- or higher in 22C:19, 22C:21, 22C:23, and 22C:32.

22C:125 Data: Abstractions, Types, and Structures 3 s.h.
Abstract data types and program specification, including graph theoretic and axiomatic models, emphasis on algebraic techniques; specification 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, 22C:21, and 22C:23.

22C:127 Introduction to Compiler Construction 3 s.h.
Concept, design, implementation of one-pass compiler; lexical analysis – token specification and recognition, automatic scanner generator; syntactic analysis - context-free grammars, top-down, bottom-up, and operator precedence parsing, LL and LR-parser techniques; treating ambiguous grammars, error recovery; intermediate code generation – postfix notation, three-address code syntax trees, code optimization – local, global, loop; large programming project. Prerequisite: grade of C- or higher in 22C:19, 22C:21, 22C:23, and 22C:32.

22C:132 Parallel Programming 3 s.h.
Parallel computations: concepts, design, implementation; performance evaluation; concept of process, parallel algorithms, language and development, running, monitoring, 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 automaton, standard, unlimited, and linear-bounded Turing machines; relationships between formal languages and automatic; undecidability and its consequences. Prerequisite: grade of C- or higher in 22C:19.

22C:144 Database Management Systems 3 s.h.
Architecture and models, entity relationship model, storage representations, heuristic search, problem-reduction techniques; machines; database generation; automatic database system. Prerequisite: grade of C- or higher in 22C:19, 22C:21, and 22C:32.

22C:145 Artificial Intelligence 3 s.h.
Basic concepts: problem-solving methods, state space representations, heuristic search, problem-reduction techniques, machine inference, game playing; knowledge representations; overviews of expert systems, language processing systems, machine perception. Prerequisite: grade of C- or higher in 22C:19 and 22C:21.

22C:151 Computer Graphics 3 s.h.
Introduction to graphics hardware; design of human interface; coordinate systems; windowing, clipping, viewports, scaling; translation; rotation; three-dimensional representations; projections from three to two dimensions; hidden lines, surfaces; vector/raster conversions, reflection, shading, color; animation. Prerequisite: grade of C- or higher in 22C:17 and 22C:27.

22C:153 Design and Analysis of Algorithms 3 s.h.
Correctness of iterative and recursive algorithms; design techniques such as divide-and-conquer, dynamic programming; analysis 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 3 s.h.
Introduction to mathematics, data structures, algorithms for 2D, 3D objects; boundary representation, constructive solid models; boolean operations, transformations, relational operations; interpolation, approximation; robustness of geometric computations. Prerequisites: grade of C- or higher in 22C:19, 22C:21, and 22C: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; specification, design, dexterity manipulation, error avoidance and recovery, task planning, robot locomotion. Prerequisites: grade of C- or higher in 22C:19, 22C:21, 22M: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 techniques; basic experimental techniques through laboratory projects. Prerequisites: grade of C- or higher in 22C:19, 22C:21, 22M:27, or consent of instructor.

22C:167 Theory of Graphs 3 s.h.
Graphs and their applications. Prerequisite: grade of C- or higher in 22C:19. Same as 22M:152.

22C:178 Computer communications 3 s.h.
Networks, ISO model, network topology, communication of digital data, data link control, error control, point-to-point networks, broadcast networks, local area networks; transport services; integrated service digital networks (ISDN); internetworking; user services. Optional use in computer science or electrical and computer engineering. Prerequisite: 22C:39 or 22C:120. Same as 55:134.

22C:180 Fundamentals of Software Engineering 3 s.h.
Problem analysis, requirements specification, design, implementation, testing/maintenance, integration, project management; human factors; management, technical communication; design methods; software design, verification, group project experience. Open only to seniors in computer science or electrical and computer engineering. Same as 55:180.

22C:181 Formal Methods in Software Engineering 3 s.h.
Models, methods, and their application in all phases of software engineering process; graph-theoretic, algebraic, model-based property based specification methods; verification of consistency, completeness of specifications; verification of software properties; exercises 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 Languages and Tools 3 s.h.
Object oriented programming concepts (objects, classes, single and multiple inheritance, polymorphism and dynamic binding, templates), advanced C++ topics (reusable class design, standard C++ class library, including Standard Template Library), other object-oriented languages and environments, such as SmallTalk, Eiffel, design patterns and software architectures, such as Model View-Controller, application frameworks, Prerequisites: grade of C or higher in 22C:180, or experience with C++ and consent of instructor. Same as 55:182.

22C:183 Software Engineering Project 3 s.h.
Use of object oriented concepts and object based models in software system analysis and design; Booth, OMT, and Bosch-Rambach unified method and notation; Jacobson’s use cases; use of design patterns; software architectures; case studies; team project for a real software product; oriented project and process management. Prerequisites: 22C:181 and 22C:182, or consent of instructor. Same as 55:183.

22C:189 Software Engineering Project Management 1-3 s.h.
Resource requirements estimation, planning, management; risk analysis; scheduling, tracking, control; personnel supervision, training, evaluation, project control, and management, including change control, configuration management; technical project leadership, assessment; participation in management of projects and teams in 22C:183. Prerequisites: grade of C- or higher in 22C:182 and 22C:183, and consent of instructor.

22C:191 Research for Thesis 1-3 s.h.
For M.S. candidates in computer science. Consent of advisor required.

22C:192 Topics in Programming Languages 3 s.h.
May include functional programming, logic programming, object-oriented programming or another paradigm; emphasis on program design, implementation, specification and verification; 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.
DANCE ELECTIVES

Seven semester hours from the following:

137:80 Dance and Society 3 s.h.
137:105 Workshop: Artist-in-Residence 1-4 s.h.
137:106 Dance Performance 0-1 s.h.
137:107 Repertory Dance Company 1-4 s.h.
137:133 Ballet Pointe 1 s.h.
137:134 Improvisation 2 s.h.
137:140 Honors Project in Dance arr.
137:143 Elementary Ballet Pedagogy 3 s.h.
137:144 Teaching of Modern Dance 3 s.h.
137:149 Honors Studies in Dance arr.
137:151 Intermediate Labanotation 3 s.h.
137:172 Independent Choreography arr.
137:173 Topics in Dance 1 s.h.
137:190 Independent Study arr.
137:191 Readings in Dance arr.

STUDIO TECHNIQUE

Courses chosen from the following (20 s.h.):

137:1 Beginning Tap 1-2 s.h.
137:2 Beginning Jazz 1-2 s.h.
137:3 Beginning Ballet 1-2 s.h.
137:4 Beginning Modern Dance 1-2 s.h.
137:11 Continuing Tap 1-2 s.h.
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 1-2 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 1-2 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 I 1-2 s.h.
137:113 Major Ballet II 1-3 s.h.
137:114 Major Modern Dance II 1-3 s.h.
137:123 Major Ballet III 1-3 s.h.
137:124 Major Modern Dance III 1-3 s.h.

COURSES OUTSIDE THE DEPARTMENT

25:165 Opera Dance Theatre Production (section 2) 4 s.h.
27:53 Human Anatomy 3 s.h.
49:108 Dance Kinesiology 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 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 III or 137:124 Major Modern Dance III with a grade of B- or higher.
The B.F.A. requires that the 124 semester hours required for graduation include 62 semester hours in courses taken outside the department and 62 semester hours in Dance Department courses. At least half of all semester hours in the major must be earned at The University of Iowa in upper-level studio courses.

**Required Courses**

**DANCE THEORY**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:40</td>
<td>Introduction to Dance</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>137:50</td>
<td>Dance Production</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25:10</td>
<td>Fundamentals of Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:60</td>
<td>Music Fundamentals in Dance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:105</td>
<td>Beginning Labanotation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:180</td>
<td>Dance History: From Primitive through the Nineteenth Century</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:181</td>
<td>Twentieth-Century Dance</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**STUDIO (NON-TECHNIQUE)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:70</td>
<td>Choreography I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:71</td>
<td>Choreography II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:106</td>
<td>Dance Performance</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>137:170</td>
<td>Choreography III</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:171</td>
<td>Choreography IV</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**DANCE ELECTIVES**

Dance electives listed as required courses under "Bachelor of Arts" 4 s.h.

**NON-DANCE ELECTIVES**

Studio courses in art, music, theater, English, or media studies and film 6 s.h.

**STUDIO TECHNIQUE**

Courses chosen from the following; courses may be repeated (31 s.h.):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:103</td>
<td>Major Ballet I</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>137:104</td>
<td>Major Modern Dance I</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>137:113</td>
<td>Major Ballet H</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>137:114</td>
<td>Major Modern Dance II</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>137:123</td>
<td>Major Ballet III</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>137:124</td>
<td>Major Modern Dance III</td>
<td>1-3 s.h.</td>
</tr>
</tbody>
</table>

**COURSES OUTSIDE THE DEPARTMENT**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>25:165</td>
<td>Opera Dance Theatre Production (section 2)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>27:53</td>
<td>Human Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>49:108</td>
<td>Dance Kinesiology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A. degrees require a total of 50 semester hours of dance major credit; B.F.A. degrees require a total of 62 semester hours of dance major credit. Course work in dance beyond these limits does not apply toward semester hours required for graduation. These checkpoints indicate the range of semester hours required.

Before the third semester begins: 12-16 semester hours of courses in the major and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: 24-32 semester hours of courses in the major and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: 36-48 semester hours of courses in the major and at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: 42-56 semester hours of courses in the major.

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

**Honors Program**

The honors program in dance is designed to serve and recognize outstanding students in the areas of performance and special projects. It requires 8-10 semester hours. Students must maintain a 3.20 grade-point average during their junior and senior years. AU honors projects must be approved by the Dance Department faculty.

**Minor**

A minor in dance requires 15 semester hours of credit in Dance Department courses with a grade-point average of 2.00 or higher, at least 12 semester hours 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 four or five semesters in residence.

Students select the choreography or performance track. A total of 60 semester hours is required.

**Prerequisites**

Advanced technique (ballet or modern) Demonstrated accomplishment in performance or choreography, music for dance, or equivalent

**Required Courses**

**DANCE CORE**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:143</td>
<td>Elementary Ballet Pedagogy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:144</td>
<td>Teaching of Modern Dance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:200</td>
<td>Graduate Seminar in Dance</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:201</td>
<td>Graduate Production Practicum</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>137:202</td>
<td>Dance Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:234</td>
<td>Graduate Improvisation</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:277</td>
<td>Thesis</td>
<td>8 s.h.</td>
</tr>
</tbody>
</table>

**DANCE TECHNIQUE**

For performance track, 18 semester hours from the following: for choreography track, 15 semester hours; courses may be repeated.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:213</td>
<td>Graduate Majors Ballet II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:214</td>
<td>Graduate Majors Modern I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:223</td>
<td>Graduate Majors Ballet III</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:224</td>
<td>Graduate Majors Modern III</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Ballet students must take a minimum of 4 semester hours of modem dance; students in modem dance must take a minimum of 4 semester hours of ballet.

**EMPHASIS COURSES—CHEOREGRAPHY TRACK**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:206</td>
<td>Graduate Dance Performance</td>
<td>(1 s.h. for each performance) 2 s.h.</td>
</tr>
</tbody>
</table>

A total of two semesters chosen from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:270</td>
<td>Graduate Choreography I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:271</td>
<td>Graduate Choreography II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:272</td>
<td>Graduate Choreography III</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:273</td>
<td>Graduate Choreography IV</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:274</td>
<td>Graduate Independent Choreography</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**EMPHASIS COURSES—PERFORMANCE TRACK**

M.F.A. performance track candidates may fulfill the 12-semester-hour performance requirement as follows.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:107</td>
<td>Repertory Dance Company</td>
<td>0-8 s.h.</td>
</tr>
<tr>
<td>137:206</td>
<td>Graduate Dance Performance</td>
<td>(1 semester hour for each performance) 4-12 s.h.</td>
</tr>
<tr>
<td>137:274</td>
<td>Graduate Independent Choreography</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:270-273</td>
<td>A course from the choreography sequence</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**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 performance or choreography track. A total of 60 semester hours is required.

**Facilities**

The Dance Department houses five technique studios, two classrooms, video viewing and Labanotation computer rooms, and its own performance theater space for informal concerts. Hancher Auditorium, the University’s premier performance hall, is the site of the annual Dance Gala.
Courses

Primarily for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:000</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
<td></td>
</tr>
<tr>
<td>137:003</td>
<td>Beginning Tap</td>
<td>1-2 s.h.</td>
<td>May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:004</td>
<td>Beginning Jazz</td>
<td>1-2 s.h.</td>
<td>May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:005</td>
<td>Beginning Ballet</td>
<td>1-2 s.h.</td>
<td>May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:006</td>
<td>Beginning Modern Dance</td>
<td>1-2 s.h.</td>
<td>May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:011</td>
<td>Continuing Tap</td>
<td>1-2 s.h.</td>
<td>Continuation of 137:1. May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:012</td>
<td>Continuing Jazz</td>
<td>1-2 s.h.</td>
<td>Continuation of 137:2. May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:013</td>
<td>Continuing Ballet</td>
<td>1-2 s.h.</td>
<td>Continuation of 137:3. May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:014</td>
<td>Continuing Modern Dance</td>
<td>1-2 s.h.</td>
<td>Continuation of 137:4. May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:021</td>
<td>Low Intermediate Tap</td>
<td>2 s.h.</td>
<td>May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:022</td>
<td>Low Intermediate Jazz</td>
<td>1-2 s.h.</td>
<td>May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:023</td>
<td>Low Intermediate Ballet</td>
<td>1-2 s.h.</td>
<td>May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:021</td>
<td>Low Intermediate Modern Dance</td>
<td>1-2 s.h.</td>
<td>May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:027</td>
<td>Basic Movement and Body Awareness</td>
<td>3 s.h.</td>
<td>Structure and systems of the body; personal body design carries weight, moves with gravity, shifts weight, stands upright, etc. Same as 28:27, 49:27.</td>
</tr>
<tr>
<td>137:033</td>
<td>Intensive Training for the Male Dancer</td>
<td>2 s.h.</td>
<td>Beginning classical ballet, Open only to males. May be repeated. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:040</td>
<td>Introduction to Dance</td>
<td>1 s.h.</td>
<td>Dance courses; current dance issues; related dance areas; introduction to the arts at The University of Iowa.</td>
</tr>
<tr>
<td>137:043</td>
<td>Continuing Intensive Training for the Male Dancer</td>
<td>2 s.h.</td>
<td>Continuation of 137:33; emphasis on advanced ballet vocabulary, enchainments. May be repeated.</td>
</tr>
<tr>
<td>137:050</td>
<td>Dance Production</td>
<td>3 s.h.</td>
<td>Scenic design, costumes; lighting; audio/video, publicity.</td>
</tr>
<tr>
<td>137:060</td>
<td>Music Fundamentals its Dance</td>
<td>2 s.h.</td>
<td>Basic music theory as applied to dance technique, teaching, and performance.</td>
</tr>
<tr>
<td>137:070</td>
<td>Choreography I</td>
<td>2 s.h.</td>
<td>Elementary skills used to explore choreographic process and form short dance works.</td>
</tr>
<tr>
<td>137:071</td>
<td>Choreography II</td>
<td>2 s.h.</td>
<td>Continuation of 137:070.</td>
</tr>
<tr>
<td>137:080</td>
<td>Dance and Society</td>
<td>3 s.h.</td>
<td>Dance styles, their relationship to societal developments; dance as art expression of human condition; choreographers and artists; special relationships of dance to other arts; historical perspective; form and content. GE: fine arts or humanities.</td>
</tr>
<tr>
<td>137:083</td>
<td>Major Ballet I</td>
<td>1-2 s.h.</td>
<td>Intermediate. May be repeated. Consent of instructor required. GE: fine arts.</td>
</tr>
<tr>
<td>137:084</td>
<td>Major Modern Dance I</td>
<td>1-2 s.h.</td>
<td>Intermediate. May be repeated. Consent of instructor required. GE: fine arts.</td>
</tr>
<tr>
<td>137:105</td>
<td>Workshop: Artist-in-Residence</td>
<td>1-4 s.h.</td>
<td></td>
</tr>
<tr>
<td>137:106</td>
<td>Dance Performance</td>
<td>0-1 s.h.</td>
<td>Rehearsals and performances; program conducted throughout academic year. May be repeated. GE: fine arts.</td>
</tr>
<tr>
<td>137:107</td>
<td>Repertory Dance Company</td>
<td>1-4 s.h.</td>
<td>Open only to members of University’s touring dance company. May be repeated.</td>
</tr>
<tr>
<td>137:108</td>
<td>Dance Rehearsal Lab</td>
<td>arr.</td>
<td>Academic credit for consistently attended rehearsals of complete choreographic pieces not included in full concert productions.</td>
</tr>
<tr>
<td>137:113</td>
<td>Major Ballet II</td>
<td>1-3 s.h.</td>
<td>High intermediate. May be repeated. Consent of instructor required. GE: fine arts.</td>
</tr>
<tr>
<td>137:114</td>
<td>Major Modern Dance II</td>
<td>1-3 s.h.</td>
<td>High intermediate. May be repeated. Consent of instructor required. GE: fine arts.</td>
</tr>
<tr>
<td>137:123</td>
<td>Major Ballet III</td>
<td>1-3 s.h.</td>
<td>Advanced; preparation for professional dance world. May be repeated. Consent of instructor required. GE: fine arts.</td>
</tr>
<tr>
<td>137:124</td>
<td>Major Modern Dance I11</td>
<td>1-3 s.h.</td>
<td>Advanced; preparation for professional dance world. May be repeated. Consent of instructor required. GE: fine arts.</td>
</tr>
<tr>
<td>137:133</td>
<td>Ballet Pointe</td>
<td>1 s.h.</td>
<td>Based on students’ needs. May be repeated. Consent of instructor required.</td>
</tr>
<tr>
<td>137:134</td>
<td>Improvisation</td>
<td>1-2 s.h.</td>
<td>Consent of instructor required.</td>
</tr>
<tr>
<td>137:140</td>
<td>Honors Project in Dance</td>
<td>arr.</td>
<td></td>
</tr>
<tr>
<td>137:142</td>
<td>Elementary Ballet Pedagogy Methods, materials.</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>137:144</td>
<td>Teaching of Modern Dance</td>
<td>3 s.h.</td>
<td>Methods, materials.</td>
</tr>
<tr>
<td>137:149</td>
<td>Honors Studies in Dance</td>
<td>arr.</td>
<td>May be repeated.</td>
</tr>
<tr>
<td>137:150</td>
<td>Beginning Labanotation</td>
<td>3 s.h.</td>
<td>Theory, practice of Laban’s principles of movement notation.</td>
</tr>
<tr>
<td>137:151</td>
<td>Intermediate Labanotation</td>
<td>3 s.h.</td>
<td>Continuation of 137:150.</td>
</tr>
<tr>
<td>137:160</td>
<td>Introduction to Ballet Accompaniment</td>
<td>1 s.h.</td>
<td>Progression of exercises in the ballet class; selecting and organizing repertoire, determining appropriate music for each exercise. Advanced proficiency in piano performance required.</td>
</tr>
<tr>
<td>137:170</td>
<td>Choreography III</td>
<td>2 s.h.</td>
<td>Motion, shape, space, time.</td>
</tr>
<tr>
<td>137:171</td>
<td>Choreography IV</td>
<td>2 s.h.</td>
<td>Continuation of 137:170.</td>
</tr>
<tr>
<td>137:172</td>
<td>Independent Choreography</td>
<td>arr.</td>
<td></td>
</tr>
<tr>
<td>137:173</td>
<td>Topics its Dance</td>
<td>1 s.h.</td>
<td>Representative topics: effort-shape, acting for the dancer, injury prevention, technique analysis, repertory, history, studio dance forms.</td>
</tr>
<tr>
<td>137:180</td>
<td>Dance History: From Primitive through the Nineteenth Century</td>
<td>3 s.h.</td>
<td>Evolution of dance from primitive ritual to end of 19th century; emphasis on development of dance as a theatrical art; period dances.</td>
</tr>
<tr>
<td>137:181</td>
<td>Twentieth-Century Dance</td>
<td>3 s.h.</td>
<td>Brief history of American dance; changing styles in ballet and modern dance, with emphasis on American influences.</td>
</tr>
<tr>
<td>137:190</td>
<td>Independent Study</td>
<td>arr.</td>
<td>Closed to freshmen. Consent of instructor required.</td>
</tr>
<tr>
<td>137:191</td>
<td>Readings in Dance</td>
<td>arr.</td>
<td>Consent of instructor required.</td>
</tr>
<tr>
<td>137:202</td>
<td>Dance Theory</td>
<td>3 s.h.</td>
<td>Aesthetics; artistic aims and philosophies.</td>
</tr>
</tbody>
</table>

ECONOMICS

Chair: Raymond Riezman
Associate professors: Michael Balch, Andreas Blume, Dean Corbæ, Beth Ingram, Alejandro Martelli, John Solow
Assistant professors: Yong-Gwan Kim, Ignacio Lubato

Undergraduate degrees: B.A., B. S., B.B.A. in Economics; minor 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, the war on drug abuse, free trade versus protectionism, U.S. competitiveness on international markets, and the quality of American education.

Undergraduate Programs

The baccalaureate programs in economics provide an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics also provides excellent preparation
The department offers three undergraduate degrees—the Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) in the College of Liberal Arts, and the Bachelor of Business Administration (B.B.A.) in the College of Business Administration.

The B.A. degree is designed to achieve a balance between economic theory, mathematical tools, and field applications. The B.S. degree maintains the balance with emphasis on developing the analytic tools; it is designed to prepare students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management.

Requirements for the B.A. and B.S. degrees are described here; those for the B.B.A. degree are described in the College of Business Administration section of the Catalog. In planning a program of study, students should be aware that the order in which courses are taken is important; some courses are prerequisites for others. Unless otherwise approved by the Director of Undergraduate Studies, no more than 6 of the 21 semester hours required in 100-level economics courses may be satisfied by transfer or correspondence credit, and 6E:104 and 6E:105 must be taken at The University of Iowa. The Handbook for Economics Majors, available from the department office, offers help in planning an economics degree program.

**Bachelor of Arts**

Requirements for the B.A. with a major in economics are as follows.

- 22M:17 Quantitative Methods I 4 s.h. (students who have taken 22M:21 Calculus and Modeling I or 22M:25 Calculus I or 22M:35 Engineering Calculus I may use this class)
- 6E:50 Introduction to Economic and Social Statistics 3 s.h.
- or 22S:8 Quantitative Methods II 4 s.h.
- 6K:71 Statistical Analysis 3 s.h.
- Twenty-one semester hours 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; either 22M:22 or 22M:26 is prerequisite to 22S:120 and 22S:130; and either 22S:120 or 22S:131 is prerequisite to 6E:184.

**Bachelor of Science**

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

Before the fifth semester begins: 6E:1, 6E:2, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least seven courses in the major, including 22M:25 and 22M:26 (or equivalents), and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 10 courses in the major, including 22S:120, 6E:104, and 6E:105

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

**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 in 6E:198 Senior Thesis in Economics. The thesis 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, 6E:2 Principles of Macroeconomics, and 6E:7 Economic Problems are approved for General Education 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...
**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6E:105</td>
<td>Microeconomics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:111</td>
<td>Labor Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:113</td>
<td>Health Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:117</td>
<td>Money, Banking, and Financial Markets</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:119</td>
<td>Economics of the Government Sector</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:125</td>
<td>International Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:129</td>
<td>Economic Growth and Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:133</td>
<td>Environmental and Natural Resource Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:135</td>
<td>Regional and Urban Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:141</td>
<td>Economics of American Industries</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:150</td>
<td>Introduction to Economic History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:164</td>
<td>Economics in Transition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:171</td>
<td>Antitrust: Legal and Economic Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:172</td>
<td>Law and Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:173</td>
<td>Advanced International Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:174</td>
<td>Monetary Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:175</td>
<td>Economic Analysis of Labor Markets</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:176</td>
<td>Public Sector Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:177</td>
<td>Mathematical Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:178</td>
<td>Statistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:179</td>
<td>Environmental and Natural Resource Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:180</td>
<td>Public Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:181</td>
<td>Public Administration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:182</td>
<td>Urban Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:183</td>
<td>City and Regional Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:184</td>
<td>Introduction to Econometrics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:185</td>
<td>Advanced Econometrics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:186</td>
<td>Applied Econometrics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:187</td>
<td>Introduction to Economic and Social Statistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:188</td>
<td>Advanced Economic and Social Statistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:189</td>
<td>Econometric Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:190</td>
<td>Macroeconomic Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:191</td>
<td>Mathematical Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:192</td>
<td>Statistics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**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 Master 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 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. with geography or 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.
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 16A:61 for noneconomics majors. same as 16A:144.

6E:179 History of Economic Thought 2-3 s.h.
Evolution of economic as a social science; ideas of Smith, Ricardus, 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.
Simple equation linear statistical models, estimation and hypothesis testing; serial correlation, heteroscedasticity, generalized least squares estimation; specification analysis; errors in variables; emphasis on interpretation, application of econometric models, methods, use of computers. Prerequisite: 22S:120 or equivalent.

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, 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 1-3 s.h.
Topics not offered in other courses. Consent of instructor required.

Consent of instructor required.

For Advanced Undergraduates
6E:197 Senior Honors Seminar 1-3 s.h.
Consent of instructor required.

6E:198 Senior Thesis in Economics 1-3 s.h.
Consent of instructor required.

6E:199 Readings and Independent Study in Economics 1-3 s.h.
Consent of instructor required.

Primarily for Graduates
With consent of the department chair, qualified undergraduates may enroll in courses listed for graduate students.

6E:200 Mathematics for Economists I 3 s.h.

6E:201 Statistical Methods 3 s.h.
Probability theory, statistical inference, linear regression models, econometric models. Prerequisites: one year of calculus and matrix algebra.

6E:202 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 Microeconomics II 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:204 or 6E:203 or one year of calculus.

6E:206 Macroeconomics II 3 s.h.
Dynamic macroeconomic 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:201 and 6E:205.

6E:212 Mathematical Economics II 3 s.h.
Theories of n-person games, noncooperative or cooperative; applications to a general 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:211.

6E:221 Econometrics 3 s.h.
Statistical inference its single and multiple equation stochastic models, models with nonindependent or nonidentically distributed error structure, dynamic models. 6E:1, 6E:3, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests. Prerequisites: 22S: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 Economic Theory I 3 s.h.
Statistical theory underlying econometric inference; emphasis on estimation, hypothesis testing in linear models. Prerequisite: 6E:221.

6E:224 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. Prerequisite: 6E:184 or 6E:221. Same as 44:236.

6E:231 Economic Development and Policy Alternatives 3 s.h.
Topics not offered in other courses. 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 import competition; international joint ventures; country studies. Consent of instructor required.

6E:235 International Trade Theory 3 s.h.
Tariff theory and policy. Consent of instructor required.

6E:236 International Monetary Economics 3 s.h.
Balance of payments adjustment; exchange controls; international investment; macroeconomy 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 and 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 economics; 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 and models, including intertemporal models of labor markets; unemployment; labor market activity; retirement decisions; economic theories of fertility; economics of discrimination; job search models; economic models of unions and strikes; public sector labor markets; determinants of income distribution; emphasis on empirical verification of theory. Prerequisites: 6E:205, and 6E:184 or 6E:221.

6E:251 Labor Economics 3 s.h.
Current research, with emphasis on prospects for ongoing 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:184 or 6E:221.

6E:263 Economic History 3 s.h.
Western economies; emphasis on populations 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 marginalist, neoclassical, Keynesian thought; American economic thought, including institutional economics; varieties of socialist economics, utrilateral tradition. Consent of instructor required.

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; non-for-profit activities, their welfare implications. Prerequisite: 6E:205.

6E:281 Economics of the Government Sector 3 s.h.
Role and effects of major taxes 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 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.
Consent of instructor required.

6E:323 Workshop in Applied Econometrics and Statistics 1-3 s.h.
Consent of instructor required.

Advanced Graduate Seminars
6E:310 Seminar in Economic Theory 1 s.h.
Consent of instructor required.

6E:321 Workshop in Microeconomics 1-2 s.h.
Consent of instructor required.

6E:322 Workshop in Macro and Monetary Economics 1-2 s.h.
Consent of instructor required.

EDUCATION
See the College of Education section of the Catalog.

ENGLISH
Chair: Adelaide Morris


Associate professors: Paul Diehl, Kathleen Diffley, Anne DiPardo, Laura Donaldson, Barbara Eckstein, Mary Lou Emery, Kevin Kopelson, Thomas Lutz, Teresa Manguam, Thomas Simmons, Alvin Snider, Jonathan Wilcox, Fredrick Woodard.

Associate professors emeriti: William Clark, Richard Hoottman, Robert F. Woerner.

Assistant professors: Bluford Adams, Margaret Bass, Linda Bolton, Ashley Dawson, Patricia Foster, Eric Gidal, John B. Harper, Rob Latham, Bridget Orr, Judith Pascoe, Phillip Round, Claire Sponsler, Bonnie Sunstein, Max Thomas, Doris S. Witt.

Assistant professor emerita: Cleo Martin.


The Department of English offers courses in literature, cultural studies, language, and writing.
giving students the opportunity to read poetry, fiction, essays, criticism, and theory and to acquire methods for understanding literature and culture. In addition to providing these essential elements of a liberal education, the department offers courses as background for students who have specialized interests in other fields. It also participates in interdisciplinary programs such as American Studies; African American World Studies; Comparative Literature; Literature, Science, and the Arts; and Women’s Studies.

The department has a strong, longstanding commitment to teaching creative and nonfiction writing. Although most students in the Ph.D. program are preparing for careers as teachers and scholars, and most in the M.F.A. program are preparing for lives as poets, storytellers, and essayists, the B.A. and M.A. programs provide valuable training for careers in many other fields. Students who have received English degrees from The University of Iowa write for advertising firms, newspapers, and book publishers; teach in primary and secondary schools; practice law and medicine; work in business and industry; and participate in state or federal government. As far as possible, a student’s course of study is arranged to meet his or her needs and objectives.

Undergraduate Program

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 come from 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 the following:

Readings courses
Authors courses, in which no more than two authors are studied
Literature and culture courses
Cultural study courses
Literature written before 1800

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. Of the 33 semester hours required for the major, 15 may be from credit transferred from another institution. Correspondence courses may not be counted toward the 33 semester hours or used to satisfy specific requirements for the major, except by special permission of the department’s director of undergraduate studies.

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, available from the director of undergraduate studies, offers a more detailed view of the requirements, programs, and procedures for the English major.

Courses Approved for General Education

Although 8G:1 Interpretation of Literature is a General Education Program requirement, English majors may take any course approved for General Education in the humanities area instead of 8C:1. In general, the department encourages English majors to satisfy General Education Program requirements with courses other than 8G courses.

In addition, no 8G course can be counted toward the 33 semester hours required for the English major. Creative Writing Studio Workshop (8W:1) cannot be counted toward the English major.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan.

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

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

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

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

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

Honors

The English major with honors gives talented students the opportunity to enhance their course of study through special courses and independent study. Each year the department offers four honors proseminars covering a wide range of historical areas and topics. Students who wish to earn a degree with honors have two options.

Option 1: Students take three proseminars 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.

Option 2: Students take proseminars, preferably in the junior year. Then in the senior year, they 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 honors advisor or the director of undergraduate studies. 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 available in the English office.

Minor

Students seeking a minor in English must first complete 8G: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 or higher. At least 12 of the 15 semester hours must be taken on campus in advanced courses (8:33 and above, all 8W courses except 8W:1, 8L courses, and 8P courses above 8P:21). Courses designated 8G do not count toward the minor in English. Transfer credit, credit by examination, and correspondence study are not accepted toward the 12 semester hours of advanced work.

No course in the minor may be taken pass/no pass.

The minor is officially acknowledged and recorded only after the student has completed the application for graduation.

English and Education

Students planning to teach English in secondary schools must complete the requirements for the major in English and gain admission to the Teacher Education Program. Application forms for admission are available from the Office of Student services at the College of Education.

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
Two courses in American literature, one of which focuses on cultural studies
A course in 19th- or 20th-century British literature
A course in writing (in addition to 8W:141)

In Education

7F: 180 Human Relations for the Classroom Teacher 3 s.h.
7P: 75 Educational Psychology and Measurement 3 s.h.
Admission

Applicants to the Teacher Education Program in secondary schools who want to gain extra credit for graduate study before deciding whether to apply to graduate school must have earned a minimum of 6 semester hours in English before they can be admitted (8G courses do not count toward the required 24 semester hours). Applicants must have at least a 2.50 grade-point average in their University of Iowa course work and at least a 3.00 grade-point average in their English courses. Finally, applicants must submit at least one letter of recommendation and write a personal statement explaining why they would like to enter the teaching profession.

Minot Licensure in English

Students who seek licensure for secondary teaching in fields other than English may seek minot licensure in English. This is particularly appropriate for students majoring in speech, journalism, Spanish, French, or German. These students must complete 28-33 semester hours of English. Freshman courses in rhetoric, speech, or writing do not count toward this requirement.

The English minor licensure program must include courses in each of these areas: American literature of the 20th century, British literature of the 19th or 20th centuries, literature for adolescents, language and learning, and approaches to teaching high school writing. In addition, students are required to take three seminars taken at The University of Iowa.

While this program meets minimum requirements for licensure, the department recommends that students who want to teach English have considerably more training in the field.

Graduate Programs

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 a comprehensive 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 of at least 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, 20th-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 written and oral comprehensive examination offered once every spring term. The examination is based on course work from the various periods of literatures in English. For more information, consult 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 ten thousand 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 semester 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 Fine Arts (Creative Writing)

The purpose of the M.F.A. program in creative writing is to provide professional guidance and a stimulating environment for students with previous achievement or notable promise in writing poetry or fiction. The flexible requirements include 48 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 the following:

- 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
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 Program.

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 fellowships, promissorialships, 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 1 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

For 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 counts 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 20th-century fiction and poetry, including manuscript collections of 20th-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 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 most 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 on the Department of English’s World Wide Web home page site.

Literature – General Education

Students must take 8G:1 The Interpretation of Literature and at least one course approved for General Education in the humanities area. English majors need not take 8G:1 but may satisfy that requirement by taking any course approved for General Education in the humanities area.

8G:1 (or its equivalent by examination or transfer) is 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.

8G:1 The Interpretation of Literature

Poetry, short fiction, drama, the novel. GE: interpretation of literature.

8G:2 Biblical and Classical Literature

Literatures of ancient cultures-Jewish, Christian, Greek, and Roman— that have been deeply affected by civilizations. GE: humanities. Prerequisite 8G:1.

8G:3 Medieval and Renaissance Literature

English and European poetry, prose, drama circa 400-1700 in dialogue with contemporary concerns. GE: humanities. Prerequisite 8G:1.

8G:4 Epic and Tragic Literature

Heroes and heroines as the products of imagination; literary representations of heroes and heroines in differing social and historical situations; how their representations shape our understanding of heroism. GE: humanities. Prerequisite 8G:1. Closed to students who have taken 8G:12.

8G:5 Comedy and Society

Examination of the comic as an interaction among individuals, communities, cultures; the comedic imagination in a variety of media as it confronts, revises, or supports social conventions. GE: Humanities. Prerequisite: 8G:1. Closed to students who have taken 8G:12.

8G:6 Narrative Literature

Selected masterpieces and recent developments in the art of storytelling in poetry and prose. GE: Humanities. Prerequisite 8G:1.

8G:7 Lyric Poetry

Poetry from major periods of development as well as contemporary verse; emphasis on distinctive language, major formal patterns of poetry. GE: Humanities. Prerequisite: 8G:1.

8G:8 Literature of the Theater

Plays from a wide range of periods; relationship of text to performance. GE: Humanities. Prerequisite 8G:1.

8G:9 American Lives


8G:11 Literature and Sexuality

Works from various genres, time periods, cultures that reflect and construct a wide range of sexual identities. GE: cultural diversity or humanities. Prerequisite 8G:1.

8G:12 Comic and Tragic Literature

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. GE: Humanities. Prerequisite: 8G:1. Closed to students who have taken 8G:4 or 8G:5.

8G:13 Literatures of Latinos/as in the USA

Works in English by U.S. authors of Latin American descent. GE: cultural diversity or humanities. Prerequisite 8G:1.

8G:14 Literatures of the African Peoples

Works in English by authors of African descent from America, continental Africa, the Caribbean. GE: foreign civilization and culture or humanities. Prerequisite 8G:1. Same as 129:8, 141:14.

8G:15 Women and Literature

Works from various genres and time periods focusing on a wide range of women’s experiences. GE: Humanities. Prerequisite 8G:1.

Literature – Primarily for Undergraduates

English department courses are open to all undergraduates who have satisfied the rhetoric 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.

8:33 Reading Theory

3 s.h.

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.
8:110 Selected Authors 3 s.h.
8:165 Shakespeare Selected Plays Same as 49:183.
8:176 Old English Beowulf 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 18th-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.
8:108 Literature and Culture of the Caribbean 3-4 s.h.
8:129 Irish Literature and Culture I 3-4 s.h.
8:131 Literature and Culture of 17th-Century England 3-4 s.h.
8:141 Literature and Culture of America Before 1800 3-4 s.h.
8:164 Literature and the Culture of the 20th Century 3-4 s.h.
8:180 Irish Literature and Culture II 3-4 s.h.

Cultural Study

8:81 Film and Literature Same as 36F:81, 48:81. 3 s.h.
8:86 Asian American Literature 3 s.h.
8:111 American Folklore 3 s.h.
8:112 Literatures of the American Peoples 3 s.h.
8:113 Native American Literature 3 s.h.
8:114 American Regional Literatures 3 s.h.
8:116 African American Literature I same as 129:116. 3 s.h.
8:117 African American Literature II Same as 129:117. 3 s.h.
8:118 Women Writers of African Descent Same as 129:127, 131:127. 3 s.h.
8:123 American Literature and History Same as 45:123. 3 s.h.
8:139 African American Poetry Same as 129:139. 3 s.h.
8:142 Popular Literatures 3 s.h.
8:143 American Landscape 3 s.h.
8:151 Literature and Anthropology Same as 48:151, 113:109. 3 s.h.
8:154 African American Drama same as 49:192, 129:180. 3 s.h.

8:159 Regional Women Writers Same as 131:159. 3 s.h.
8:161 Women in Literature Same as 131:161. 3 s.h.
8:166 Themes and Modes in Literature by Women Same as 131:166. 3 s.h.
8:169 Changing Concepts of Women in Literature Same as 131:169. 3 s.h.
8:172 Narrative and the Cinema Same as 48:172. 3 s.h.
8:176 Literature and Philosophic Thought same as 32:148. 3 s.h.
8:177 Literature and Art same as 48:177. 3 s.h.
8:179 Literature and Society Same as 48:150. 3 s.h.
8:182 Science Fiction 3 s.h.
8:185 Native American Autobiography same as 149:185. 3 s.h.
8:188 Prose by Women Writers Same as 131:188. 3 s.h.

Period and Genre

8:1 Modern Fiction 3 s.h.
8:8 Classical and Biblical Literature 3 s.h.
8:11 Films and Screenplays Same as 36F:11. 3 s.h.
8:13 The Classical Views GE: foreign civilization and culture or humanities. same as 14:13. 3 s.h.
8:40 Major Texts in World Literature I GE: humanities. Same as 48:40. 3 s.h.
8:41 Major Texts of World Literature II GE: humanities. Same as 48:41. 3 s.h.
8:53 Lyric Structures 3 s.h.
8:55 American Poetry 3 s.h.
8:56 American Literary Classics 3 s.h.
8:57 American Novel I 3 s.h.
8:58 American Novel II 3 s.h.
8:59 American Short Story 3 s.h.
8:60 Selected Works 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 Continental European Renaissance 3 s.h.
8:68 British Renaissance 3 s.h.
8:69 Selected Romantic Works 3 s.h.
8:70 Selected Victorian Works 3 s.h.
8:85 Topics in American Literature 3 s.h.
8:109 European Literature of the 19th century Same as 48:109. 3 s.h.
8:115 Classical Mythology GE: humanities. Same as 14:112. 3 s.h.
8:119 African Literature Same as 129:119, 141:119. 3 s.h.
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.
8:124 Literary Genres in European Literature II Same as 48:115. 3 s.h.

8:127 Contemporary Scene in Poetry Same as 48:127. 3 s.h.
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.
8:138 Post-Colonial Studies 3 s.h.
8:140 Contemporary Scene in Fiction Same as 48:140. 3 s.h.
8:144 Medieval Drama Same as 49:181. 3 s.h.
8:145 English Renaissance Drama Same as 49:184. 3 s.h.
8:146 Restoration Drama Same as 49:185. 3 s.h.
8:148 Modern Drama Ibsen to Shaw Same as 49:186. 3 s.h.
8:149 Modern Drama Brecht to Stoppard Same as 49:187. 3 s.h.
8:150 American Drama to 1945 Same as 49:116. 3 s.h.
8:155 Contemporary British Drama Same as 49:188. 3 s.h.
8:160 Selected Themes in Literary Works 3 s.h.
8:163 Seventeenth-century Lyric Poetry 3 s.h.
8:167 Studies in Drama Same as 49:193. 3 s.h.
8:170 Literary Genres and Modes 3 s.h.
8:183 Literary Genres in European Literature I Same as 48:313. 3 s.h.
8:184 Contemporary Theatre and Drama GE: fine arts or humanities. same as 49:114. 3 s.h.
8:186 American Autobiography 3 s.h.
8:190 Augustine to Boccaccio Same as 48:190. 3 s.h.
8:191 International Literature Today Same as 48:191. 1,3 s.h.
8:192 Dante and Romance Poesy 3 s.h.
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 49:117. 3 s.h.

Theory and Criticism

8:99 Undergraduate Seminar Same as 48:95. 3 s.h.
8:100 introduction to Criticism and Theory Same as 48:100. 3 s.h.
8:173 The Politics of Literacy Same as 7E:154, 7S:154, 10:142. 3 s.h.
8:174 Foundations of Rhetoric Theory and Criticism Same as 10:151, 36E:151. 3 s.h.
8:181 Issues in Rhetoric and Culture Same as 10:160, 36E:153. 3 s.h.
8:189 Comparative Cultural criticism same as 39:193, 48:193. 3 s.h.
8:194 introduction to Feminist Criticism Same as 48:194, 151:194. 3 s.h.
8:195 Topics in Criticism and Theory 3 s.h.

Special Topics

8:000 Cooperative Education Internship 0 s.h.
8:128 London Performance Study 3 s.h.
Classes and performances in London, Theatre. Same as 49:115. 3 s.h.
### Theory and Criticism

- **8:243 Feminist Cultural Studies**  
  Same as 131:243.

- **8:260 Reading Genres**  
  Same as 48:260.

- **8:261 History of Criticism: Plato to 1700**  
  Same as 48:261, 14:261.

- **8:262 History of Criticism: 1700-Present**  
  Same as 48:262, 14:262.

- **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.

- **8:266 Rhetorics of Ethnicities**  
  Same as 10:261, 113:261.

- **8:267 classical Rhetoric**  
  Same as 36:8:267.

- **8:268 Modern Rhetoric**  
  Same as 36:268.

- **8:273 Post-colonial Literature and Theory**  
  Same as 21:273.

- **8:277 Introduction to contemporary Literary Theory**  
  Same as 35:277.

- **8:284 Types of Modern Criticism**  
  Same as 35:284, 48:284.

- **8:306 Studies in Language Theory**  
  Same as 36:306.

- **8:330 Modes of Critical Analysis**  
  Same as 48:330.

- **8:382 Literary Genres and Modes**  
  Same as 48:382.

#### Special Topics

- **8:203 History of the Book**  
  Same as 21:203.

- **8:228 Studies in African American Literature**  
  Same as 129:228.

- **8:238 American Ethnic Literature**  
  Same as 131:238.

- **8:241 American Indian Women’s Literature**  
  Same as 131:241.

- **8:248 Caribbean Literature**  
  Same as 131:248.

- **8:249 Modernist Studies**  
  Same as 131:249.

- **8:259 Law and Lawyers in Literature**  
  Same as 91:259.

- **8:270 Introduction to Cultural Studies**  
  Same as 131:270.

- **8:288 Topics in Irish Literature**  
  Same as 131:288.

- **8:313 Modern Studies**  
  Same as 131:313.

- **8:314 Postmodern Studies**  
  Same as 131:314.

- **8:316 Studies in Poetry**  
  Same as 131:316.

- **8:317 Topics in Medieval Literature**  
  Same as 131:317.

- **8:319 Issues in Sixteenth-Century Literature**  
  Same as 131:319.

- **8:320 Issues in Seventeenth-Century Literature**  
  Same as 131:320.

- **8:321 Topics in Eighteenth-Century Literature**  
  Same as 131:321.

- **8:322 Topics in Post-Colonial Studies**  
  Same as 131:322.

- **8:323 Topics in Nineteenth-Century Literature**  
  Same as 131:323.

- **8:340 Studies in American Literature**  
  Same as 131:340.

- **8:360 Issues in Sixteenth and Seventeenth-Century Literature**  
  Same as 131:360.

#### Seminars

**Advanced work in literary history, criticism, and theory; concentration varies from semester to semester.**

- **8:402 Seminar: Medieval Literature**  
  Same as 48:402.

- **8:407 Seminar: Renaissance Literature**  
  Same as 48:407.

- **8:414 Seminar: Seventeenth-Century Literature**  
  Same as 48:414.

- **8:421 Seminar: Recreation and Eighteenth-Century Literature**  
  Same as 48:421.

- **8:431 Seminar: English Romanticism**  
  Same as 48:431.

- **8:432 Seminar: Victorian Literature**  
  Same as 48:432.

- **8:434 Seminar: Twentieth-Century British Literature**  
  Same as 48:434.

- **8:446 Seminar: Nineteenth-Century American Literature**  
  Same as 48:446.

- **8:448 Seminar: Native American Literature**  
  Same as 48:448.

- **8:452 Seminar: Short Fiction**  
  Same as 48:452.

- **8:453 Seminar: Post-Colonial Studies**  
  Same as 48:453.

- **8:455 Seminar: American Writers of the Twentieth Century**  
  Same as 48:455.

- **8:460 Seminar: Problems in Aesthetics and Literary Theory**  
  Same as 48:460.

- **8:461 Seminar: Problems in Critical Theory**  
  Same as 48:461.

- **8:462 Seminar: Cultural Studies**  
  Same as 48:462.

- **8:463 Seminar: Narrative Theory**  
  Same as 48:463.

- **8:465 Seminar: History, Literature, and American Culture**  
  Same as 48:465.

- **8:466 Seminar: History, Literature, and Culture**  
  Same as 48:466.

#### Independent Study

- **8:500 Advanced Studies in an Author**  
  Same as 103:500.

- **8:505 Advanced Studies in a Literary Period**  
  Same as 103:505.

- **8:510 Advanced Studies in a Literary Form**  
  Same as 103:510.

- **8:515 Advanced Studies in a Literary Genre**  
  Same as 103:515.

- **8:520 Advanced Studies in a Literary Mode**  
  Same as 103:520.

- **8:525 Advanced Studies in a Literary Movement**  
  Same as 103:525.

- **8:530 Advanced Studies in a Literary Theme**  
  Same as 103:530.

- **8:535 Advanced Studies in Literary Criticism**  
  Same as 103:535.

- **8:550 Advanced studies in an Interdisciplinary Subject**  
  Same as 103:550.

- **8:585 M.A. Thesis in Literary Studies**  
  Same as 103:585.

- **8:590 special Project for Graduate Students**  
  Same as 103:590.

- **8:595 Ph.D. Thesis**  
  Same as 103:595.

### Linguistics and Language

- **8L:100 Introduction to Linguistics**  
  Same as 103:100.

- **8L:104 Varieties of English Present and Past**  
  Same as 103:104.

- **8L:120 Historical and Comparative Linguistics**  
  Same as 103:120.

- **8L:131 History of the English Language**  
  Same as 103:131.

- **8L:132 Elementary Old English**  
  Same as 103:132.

- **8L:142 Modern English Grammar**  
  Same as 103:142.
## Professional Training

Only undergraduates with special permission may take 8P:20 and 8P:21. Neither course counts for credit toward an English major or minor.

- **8P:20** Academic Seminar I 3 s.h.
- **8P:21** Academic Seminar II 3 s.h.

The following courses offer theoretical and practical training for those who plan to teach.

- **8P:182** Language and Learning 2-3 s.h.
- **8P:450** Colloquium: Teaching Rhetoric arr.
- **8P:425** Ph.D. Seminar: English Education arr.
- **8P:405** M.A. Seminar: English Education arr.

### Nonfiction Writing

The following courses may be repeated:

- **8W:1** Creative Writing Studio Workshop 3 s.h.
- **8W:550** Special Project in Nonfiction Writing arr.
- **8W:195** Undergraduate Project in Creative Writing arr.
- **8W:199** Undergraduate Project in Nonfiction Writing arr.
- **8W:244** Colloquium: Free-lance Writing and Publishing 2 s.h.
- **8W:261** Readings in the Essay 3 s.h.
- **8W:262** Readings in Nonfiction 3 s.h.
- **8W:345** Research on Writing 3 s.h.
- **8W:357** Teaching in a Writing Lab arr.
- **8W:404** Seminar: Contemporary Rhetorical Theory Same as 10:604, 36R:604.
- **8W:495** Seminar: Problems in Modern Poetry arr.
- **8W:497** Words and Music 3 s.h.
- **8W:498** Seminar: Problems in Classic Poetry arr.

### Theory and Practices of Writing

These courses combine theory and analysis of nonfiction writing with practical experimentation in writing. They are intended for people who want to practice, criticize, and/or teach nonfiction writing.

- **8W:100** Textual Editing 3 s.h.
- **8W:233** Style and Voice 3 s.h.
- **8W:239** Rhetorical Theory Same as 10:349.
- **8W:243** Colloquium in the Teaching of Writing 2 s.h.
- **8W:244** Colloquium: Free-lance Writing and Publishing 2 s.h.
- **8W:261** Readings in the Essay 3 s.h.
- **8W:262** Readings in Nonfiction 3 s.h.
- **8W:345** Research on Writing 3 s.h.
- **8W:375** Teaching in a Writing Lab arr.
- **8W:404** Seminar: Contemporary Rhetorical Theory Same as 10:604, 36R:604.

### Independent Study

- **8W:590** M.F.A. Thesis arr.

### Creative Writing

All may be repeated except 8W:1 and 8W:80.

### General Education

- **8W:1** Creative Writing Studio Workshop 3 s.h.
- **8W:152** Poetry Writing 3 s.h.
- **8W:155** Undergraduate Nonfiction Workshop 3 s.h.

### Workshops and Seminars

Open only to Writers’ Workshop students or to others with consent of instructor.

- **8W:163** Undergraduate Writers’ Workshop: Fiction arr.
- **8W:166** Undergraduate Writers’ Workshop: Poetry arr.
- **8W:251** Fiction Workshop 3 s.h.
- **8W:252** Poetry Workshop arr.
- **8W:270** Form of Fiction 3 s.h.
- **8W:275** Form of Poetry 3 s.h.
- **8W:490** Seminar: Problems in Modern Fiction arr.
- **8W:495** Seminar: Problems in Modern Poetry arr.

### Translation Studies

- **8W:30** Introduction to Translation Studies Same as 48:30.
- **8W:219** Contemporary Translation Theory Survey Same as 35:219, 48:219.
- **8W:260** Translation Workshop same as 48:260.

### Independent Study

- **8W:195** Undergraduate Project in Creative Writing arr.
- **8W:555** Graduate Project in Creative Writing arr.
- **8W:590** M.F.A. Thesis arr.

---

### EXERCISE SCIENCE

Chair: Jerry A. Maynard
Professors emeriti: Gene M. Asprey, Donald R. Casady
Associate professors: Kelly J. Cole, Warren G. Darling, Gary F. Hansen, Kevin C. Kregel, David K. Leslie
Associate professors emeriti: N. Richard Hozaepfel, Donald D. Klotz, Arthur J. Wendler
Adjunct assistant professor: Danny T. Foster
Athletic training clinical assistants: Michael P. Lawler, Boyd P. Murray

Undergraduate degree: B.S. in Exercise Science
Graduate degrees: M.S., Ph.D. in Exercise Science

The Department of Exercise Science offers the Bachelor of Science in Exercise Science. The graduate program includes the Master of Science without thesis, the Master of Science with thesis, and the Ph.D. Students may choose from five different areas of specialization for the M.S. with thesis and from five for the Ph.D.

### Undergraduate Programs

#### 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, dentistry, physician assistant, and physical therapy; and athletic training. It also prepares students for careers in athletic training or exercise science.

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).
Athletic 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:

- 2:10 Principles of Biology I 3 s.h.
- 4:13 Principles of Chemistry I 3 s.h.

One of these:

22M:16 Calculus for the Biological Sciences 4 s.h.
22M:21 Calculus and Modeling I 4 s.h.
22M:25 Calculus I 4 s.h.
22M:35 Engineering Calculus I 4 s.h.

10:1-2 Rhetoric I-11 8 s.h.
or
10:3 Accelerated Rhetoric 4 s.h.

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.

GENERAL EDUCATION COURSES

The department recommends that candidates for the B.S. degree in exercise science satisfy the College of Liberal Arts General Education Program requirement in natural sciences by taking 4:13-14 Principles of Chemistry I-II and 2:10 Principles of Biology. It also recommends satisfaction of the General Education Program requirement in social sciences with 31:3 General Psychology. Transfer credit for course work in the major requires the approval of the undergraduate academic adviser.

EXERCISE SCIENCE REQUIREMENTS

Students must earn at least 20 semester hours. All of these:

27:141 Exercise Physiology 3 s.h.
27:142 Exercise Physiology Laboratory 2 s.h.
27:150 Gross Anatomy for Exercise Science 2 s.h.
27:151 Gross Anatomy Lab for Exercise Science 2 s.h.
27:160 Motor Control I: Neurophysiological Basis 3 s.h.
27:191 Exercise Science Colloquium 0 s.h.
27:197 Biomechanics of Human Motion 4 s.h.

At least two of these:

27:96 Special Projects 1-2 s.h.
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

Total of at least 12 semester hours:

- 2:10-11 Principles of Biology I-II 8 s.h.
- At least 4 semester hours chosen from these:
  - 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.
  - 2:128 Fundamental Genetics 4 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

All of these (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 2 s.h.

These 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 these:

- 6K:70 Computer Analysis 3 s.h.
- 22C:5 Problem Solving and Computing 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 4 s.h.
- 22C:17 Programming Techniques and Data Structures 4 s.h.
- 57:17 Computers in Engineering 3 s.h.

Mathematics

At least 4 semester hours chosen from these:

- 22M:16 Calculus for the Biological Sciences 4 s.h.
- 22M:21 Calculus and Modeling I 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 these:

- 7P:143 Introduction to Statistical Methods 3 s.h.
- 22S:101 Biostatistics 3 s.h.
- 22S:102 Introduction to Statistical Methods 3 s.h.
- 63:161 Introduction to Biostatsistics 3 s.h.

Physics

Either of these two-semester sequences:

- 29:11-12 College Physics I-II 8 s.h.
- 29:17-18 Introduction to Physics I-11 8 s.h.

Pharmacology

- 71:120 Drugs: Their Nature, Action and use 2 s.h.

Psychology

- 31:126 Behavioral Neuroscience 3 s.h.
- 31:128 Introduction to Behavioral Pharmacology 3 s.h.
- 31:152 Health Psychology 3 s.h.
- 31:163 Abnormal Psychology 3 s.h.

RECOMMENDED ELECTIVES

It is recommended that students choose 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).”

Biochemistry

- 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.
- 99:140 Experimental Biochemistry 4 s.h.

Biology

- 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.
- 2:128 Fundamental Genetics 4 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

- 4:121 Organic Chemistry I 3 s.h.
- 4:122 Organic Chemistry II 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.

Classics

- 20:103 Medical and Technical Terminology 2 s.h.

Education

- 7C:485 Introduction to Substance Abuse 3 s.h.

Engineering

- 57:7 Statics 2 s.h.
- 57:10 Dynamics 3 s.h.
- 57:19 Mechanics of Deformable Bodies 3 s.h.

English

- 8W:15 Writing for Practical Purposes 2-3 s.h.
- 8W:100 Nonfiction Writing 3 s.h.

Geology

- 12:123 Vertebrate Osteology 2 s.h.

Microbiology

- 61:157 General Microbiology 5 s.h.

Pharmacology

- 71:120 Drugs: Their Nature, Action and use 2 s.h.

Psychology

- 31:126 Behavioral Neuroscience 3 s.h.
- 31:128 Introduction to Behavioral Pharmacology 3 s.h.
- 31:152 Health Psychology 3 s.h.
- 31:163 Abnormal Psychology 3 s.h.

Radiation Biology

- 77:103 Introduction to Radiation Biology 4 s.h.

Speech Pathology and Audiology

- 3:140 Manual Communication 1 s.h.
- 3:116 Basic Neuroscience for Speech and Hearing 3 s.h.
Athletic Training Program

The athletic training program provides concentrated studies and clinical experiences leading to national certification in athletic training. Employment opportunities for graduates include serving as health care professionals for sports medicine clinics and hospitals. Additional education is usually required for employment with professional teams as well as universities, colleges, and secondary school athletic teams. Teacher certification is recommended but not required.

Students who have not formally contacted the athletic training program director before enrolling at The University of Iowa should talk to an athletic training 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 may be admitted into the program and begin clinical experience as sophomores. To be considered for admission, students must submit an application at the start of the spring semester; complete prerequisite course work in biology and at least one other designated area (biology, chemistry, mathematics, physics, or psychology); be certified in first aid and CPR; and maintain a grade-point average of 2.50 or higher.

Program requirements include the following.

- 27:107 Introduction to Biomechanics 3 s.h.
- 27:140 Exercise Physiology for Practitioners 3 s.h.
- 27:141 Exercise Physiology 3 s.h.
- 7C:199 Counseling for Related Professions 3 s.h.
- 27:160 Motor Control I: Neuropsychological 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 6 s.h.
- *27:185 Practicum in Emergency Care 0-3 s.h.
- 27:253 Laboratory in Advanced Anatomy 6 s.h.
- 28:130 Human Nutrition 3 s.h.
- 71:120 Drugs: Their Nature, Action, and Use 2 s.h.
- 27:130 Human Physiology 3 s.h.
- or 72:130 Systemic Physiology 3 s.h.
- *Enrollment is limited to students formally admitted to the athletic training program.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Students must be admitted to the exercise science and athletic training programs on schedule in order to complete a four-year graduation plan.

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

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

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

Before the eighth semester begins: at least two more courses in the major.

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

**ATHLETIC TRAINING PROGRAM**

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

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

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

Before the eighth semester: 12 courses in the major.

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

**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.
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 of these:
- 27:141-142 Exercise Physiology/
  Exercise Physiology Laboratory (not
  for students specializing in physiology) 4 s.h.
- 27:160 Motor Control I:
  Neurophysiological Basis (not
  for students specializing in motor control) 3 s.h.
- 27:197 Biomechanics of Human Motion
  (not for students specializing in motor
  control) 4 s.h.
- 27:153 Connective, Muscle, Nerve
  Tissue Anatomy 2 s.h.
or
- 27:155 Skeletal Muscle Biology 3 s.h.

Three of these:
- 22S:102 Introduction to Statistical
  Methods 3 s.h.
or
- 63:161 Introduction to Biostatistics 3 s.h.
- An approved graduate-level course in
  computer science 2-4 s.h.
- An approved graduate-level course in
  scientific writing 3 s.h.

Specialization Area Courses

27:404 Thesis: M.A. 4 s.h.
Specialization courses approved by
adviser 5-7 s.h.
Electives 4-5 s.h.

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 therapeutic sciences, 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 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

At least 10 semester hours of independent
research, exclusive of the thesis requirement

At least 72 semester hours of graduate credit
beyond the B.A. or B.S. (typically more than
90 semester hours)

CORE COURSE REQUIREMENTS

Two approved courses in statistics
One approved computer science course
27:201 Research (minimum
requirement) 10 s.h.
27:202 Practicum in College Teaching
(minimum requirement) 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 therapeutic science 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 before the third semester of graduate study (or before 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 Applied Electromyography 3 s.h.
60:234 Medical Neuroscience 4 s.h.
77:103 Introduction to Radiation
  Biology 4 s.h.
77:224 Radioisotopes in Biological
  Research 1-3 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 Applied Electromyography 3 s.h.
57:19 Mechanics of Deformable Bodies
  3 s.h.
57:20 Mechanics of Fluids and Transfer
  Processes 4 s.h.
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

For Undergraduates and Graduates

27:200 Problems
27:201 Research
101:284 Practicum in Research
101:325 Independent Study
101:327 Research in Therapeutics

Specialty Emphasis
Individual plans of study are developed jointly by the graduate student and faculty adviser. Course requirements depend on the student’s specific specialty area (cardiopulmonary, ergonomics, musculoskeletal, neuromuscular).

Primarily for Undergraduates

27:153 Connective, Muscle, Nerve Tissue Anatomy
27:155 Skeletal Muscle Biology
27:157 The Qualitative Analysis of Human Motion
27:160 Motor Control I: Neuropathological Basis
27:171 Administration of Athletic Training Programs
27:173 Clinical sciences II
27:174 course in athletic training.
27:175 Practicum in Research Arr.
27:176 Clinical Sciences IV
27:177 Clinical sciences V
27:178 Clinical Sciences V
27:179 Biomechanics of Human Motion
27:185 Practicum in Emergency Care
27:191 Exercise Science Colloquium
27:197 Biomechanics of Human Motion
27:200 Problems
27:201 Research
27:202 Practicum in College Teaching
27:210 Research
101:284 Practicum in Research
101:325 Independent Study
101:327 Research in Therapeutics

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

27:153 Connective, Muscle, Nerve Tissue Anatomy
27:155 Skeletal Muscle Biology
27:157 The Qualitative Analysis of Human Motion
27:160 Motor Control I: Neuropathological Basis
27:171 Administration of Athletic Training Programs
27:173 Clinical sciences II
27:174 course in athletic training.
27:175 Practicum in Research Arr.
27:176 Clinical Sciences IV
27:177 Clinical sciences V
27:178 Clinical Sciences V
27:179 Biomechanics of Human Motion
27:200 Problems
27:201 Research
27:202 Practicum in College Teaching
27:210 Research
101:284 Practicum in Research
101:325 Independent Study
101:327 Research in Therapeutics

Specialty Emphasis
Individual plans of study are developed jointly by the graduate student and faculty adviser. Course requirements depend on the student’s specific specialty area (cardiopulmonary, ergonomics, musculoskeletal, neuromuscular).
Bachelor of Arts in French
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).

9:111 Introduction to Reading and Writing in Literature 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 may be taught in English under the French department prefix, 9, such as 9:141, 9:142, 9:143, 9:145, 9:147) 21 s.h.

Students must maintain a 2.00 grade-point average at least in all major course work, including all University of Iowa course work in the major. Majors must maintain portfolios documenting their progress toward attaining the objectives of the French major. On the basis of materials in his or her portfolio, a student may petition the department to count a literature course toward the culture and civilization distribution requirement, or vice-versa.

Transfer course work is acceptable and students are encouraged to participate in study abroad, but the last two courses in the major must be completed at The University of Iowa. All transfer work for application to the major is evaluated on an individual basis.

Upon declaring the major (or later, but before the senior year), students should choose an emphasis in one of the following four tracks.

Culture and Civilization Track
The culture and civilization track is designed for students interested in French history, politics, and culture. It is recommended for students who wish to combine studies in French with a major in another area, such as history, political science, pre-law, communications, or journalism.

B.A. requirements for the culture and civilization track include the following courses, at least two of which must be numbered above 9:150.

Four courses in culture
Three courses in literature or language

Language Track
The language track is designed for students with an interest in language and translation. Students work in specific areas such as international business, comparative stylistic, and translation.

B.A. requirements for the language track include the following courses.

9:115 Business French 3 s.h.
9:155 Techniques of Translation 3 s.h.
9:197 Translation Project 3 s.h.
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.

FRENCH AND ITALIAN
Chair: Geoffrey R. Hope
Professors: Charles F. Altman, Janet G. Altman, Jacques A. Bourgeau, Simone Delay, Steven Ungar

Undergraduate Programs
The department introduces students to the cultures of France and Italy, provides an understanding of those countries' historical and contemporary importance, and facilitates development of proficiency in the French and Italian languages. It also fosters critical appreciation of French, Francophone, and Italian literature and civilization.

Students choose from a variety of programs for majors in French and Italian and electives for nonmajors with prerequisite linguistic skills. They are afforded flexible means to meet the liberal arts General Education Program requirement in foreign language and to satisfy individual needs and interests.

Students majoring in French or Italian may combine their studies with courses in education to prepare for jobs in high school teaching. They may go on to graduate study in areas such as French, Italian, comparative literature, 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 Italian
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, at least two of which must be numbered above 9:150.

Five or six courses in literature
One or two courses in culture or language

Teaching Track
French majors interested in obtaining licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in French in the teaching track and must be admitted to the College of Education’s foreign language teacher education program (TEP). Several courses in the College of Education are required, as is one semester of student teaching. Contact the College of Education, Division of Curriculum and Instruction, for more information.

B.A. requirements for the teaching track include the following courses, at least two of which must be numbered above 9:150.

Two courses in culture
Two courses in literature
Three courses in culture, literature, pedagogy, or language

Students who plan to use a French minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements. See the College of Education section of the Catalog.

Literature Track
Requirements for the major in Italian total 31 semester hours, as follows.

18:11-12 Intermediate Italian 8 s.h.
18:111-12 Advanced Composition and Conversation 8 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.
Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan.

B.A. in French
Before the third semester begins: competence in first-year French and at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: second-year French (9:12) and at least one-half of the semester hours required for graduation
Before the seventh semester begins: two semesters of third-year French (9:111-9:112), second-level French conversation (9:36), one or two other courses in the major, and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: third-level French conversation (9:126), and three more courses in the major, for students in the French language track, 9:115 and 9:155
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Italian
Before the third semester begins: competence in first-year Italian and at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: competence in second-year Italian (18:12) and at least one-half of the semester hours required for graduation
Before the seventh semester begins: four more courses in the major and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: a total of at least five courses in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors
The department participates in the University Honors Program. To gain admission to honors in French or Italian, a student must have an overall grade-point average of 3.20 and a departmental grade-point average of 3.50, and must be enrolled in the University Honors program. Students register for 9:198/18:198 Honors Research and Thesis, and one course numbered above 9:160 in French or 18:103 in Italian and designated as an honors course. Students must complete an honors thesis or equivalent in French or Italian and present their work to a faculty committee of their choice.

Minor in French
The requirements for a minor in French are 15 semester hours with a grade-point average of at least 2.00, with 12 semester hours taken at The University of Iowa in courses numbered 9:105 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 grade-point average of at least 2.00, with 12 semester hours 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 cultural and historical interest. Students may earn 8 or 9 semester hours in the program.

Summer Program in Quebec
The department participates in the Committee on Institutional Cooperation (CIC) Summer French Program in Quebec at the Universite de Laval. The CIC is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the Cours d’ete pour non-francophones of the Universite 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. The minimum prerequisite is two semesters of French.

Foreign Language House
The French and Italian department maintains close connections with the Maison Francaise 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 the following.
9:209 Advanced Grammar and Lexicology 3 s.h.
9:210 Comparative Stylistic 3 s.h.
At least four graduate-level literature or culture courses numbered 200 and above
With 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 the following.
9:209 Advanced Grammar and Lexicology 3 s.h.
9:210 Comparative Stylistic 3 s.h.
Courses in French literature numbered 200 and above (minimum requirement) 9 s.h.
The following courses also are suggested.
9:154 Literary Analysis 3 s.h.
9:113-114 French Civilization 6 s.h.
9:150 Methods: Secondary School Foreign Language 3 s.h.
9:165 French Civilization Through the Arts 3 s.h.
Candidates must pass a final written and oral examination.

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 the following.

9:251 Introduction to Old French Grammar 3 s.h.
9:260 Critical Theory and Practice 3 s.h.

Fifth semester (or equivalent proficiency) in a foreign language other than French.

Three graduate courses in a related field, such as another literature, history, or philosophy (minimum requirement) 8 s.h.
9:277 Thesis (minimum requirement) 6 s.h.

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.

Financial Aid

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 Pottiers 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 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 – For Undergraduates and Graduates

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 in any French course.

9000 Cooperative Education Internship 0 s.h.
9:1 Elementary French I 4 s.h.
For students who have no knowledge of French. GE: foreign language.
9:2 Elementary French II 4 s.h.
GE: foreign language. Prerequisite: 9:1 or equivalent.
910 First-Year French Review 5 s.h.
A year in one semester. GE: foreign language.
9:1 Intermediate French I 4 s.h.
GE: foreign language. Prerequisite: 9:1 or 9:10 or equivalent.
9:12 Intermediate French II 4 s.h.
Continuation of 9:11. GE: foreign language. Prerequisite: 9:11 or equivalent.
9:25 French pronunciation 2 s.h.
9:26 French Conversation: First Level 2 s.h.
GE: foreign language. Prerequisite: 9:2 or equivalent.
9:36 French Conversation: Second Level 2 s.h.
Prerequisite: 9:26 or equivalent.
9:57 Special Work 1-6 s.h.
Prerequisite: 9:2 or equivalent.

French – for Undergraduates and Graduates

9:101 French for Reading/Research 2 s.h.
Reading ability for research; for 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.
9:105 Third-Year French 3 s.h.
Development of reading skills in French; composition and review of basic grammar structures. Prerequisite: 9:12 or equivalent.
9:107 Introduction to French Literature: Medieval and Renaissance 3 s.h.
Prerequisite: 9:12 or equivalent.
9:108 Introduction to French Literature: Seventeenth and Eighteenth centuries 3 s.h.
Prerequisite: 9:12 or equivalent.
9:109 Introduction to French Literature: Nineteenth Century 3 s.h.
Prerequisite: 9:12 or equivalent.
9:110 Introduction to French Literature: Twentieth Century 3 s.h.
Prerequisite: 9:12 or equivalent.
9:111 Introduction to Reading and Writing in Literature 3 s.h.
Development of analytical, organizational skills for interpretation of literature; readings in prose, poetry, drama, criticism; emphasis on essay writing. Prerequisite: 9:12 or equivalent.
9:112 Third-Year French Grammar 3 s.h.
Study of word forms, sentence patterns for more accurate use of French. Prerequisite: 9:12 or equivalent.
9:113 French Civilization 3 s.h.
French social history, GE: foreign civilization and culture. Prerequisite: 9:12 or equivalent.
9:114 French Civilization 3 s.h.
French social history. Prerequisite: 9:12 or equivalent.
9:115 Business French 3 s.h.
Language of economics and business; practice in business correspondence and communication, overview of the EEC, active use of business vocabulary. Offered fall semesters. Prerequisite: 9:112 or equivalent.
9:118 Topics in French Studies I 3 s.h.
Prerequisite: 9:2 or equivalent.
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. Prerequisites: 9:115, and 9:115 or 9:117; or consent of director.
9:124 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.
Prerequisite: 9:12 or equivalent.
9:142 French and Francophone Literature and Culture 3 s.h.
Literature of nations and peoples whose indigenous cultures have been influenced by French language and civilization; readings in French. Prerequisite: 9:12 or equivalent.
9:143 Studies in French Theatre 3 s.h.
Taught in English. Prerequisite: 9:12 or equivalent.
9:144 Tales of love in French Literature 3 s.h.
The problematic of love, politics and poets of desire; selected works, Middle Ages to 20th century. Prerequisite: 9:12 or equivalent or consent of instructor.
9:145 Literature, Music, and Aesthetics 2-4 s.h.
Interdisciplinary connections between literature, music; specific cultural, ideological contexts. Same as 25:137, 35:145.
9:147 French Cinema 3 s.h.
GE: foreign civilization and culture. Prerequisite: 9:12 or equivalent Same as 36:105.
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: 9:111 and 9:112, or equivalents.
9:155 Techniques of Translation 3 s.h.
Methodology of translation; comparative statistics; exercises in translating English to French. Offered fall semesters. Prerequisites: 9:111 and 9:112.
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: 9:111 and 9:112, or equivalents.
9:158 Topics in Foreign Language Instructional Technology 2 s.h.

French and Italian ● Liberal Arts 143
Women in Literature 3 s.h.
9:181

Twentieth-Century French Poetry 3 s.h.
Prerequisites: 9:111 and 9:112, or equivalents.
9:186

Aspects of Poetry 3 s.h.
Prerequisites: 9:111 and 9:112, or equivalents.
9:187

Twentieth-Century French Drama 3 s.h.
Prerequisites: 9:111 and 9:112, or equivalents.
9:188

The Novel 3 s.h.
Prerequisites: 9:111 and 9:112, or equivalents.
9:189

Undergraduate Seminar 3 s.h.
Offered spring semesters. Prerequisite: 9:155 or equivalent.
9:190

Prerequisites: 9:111 and 9:112, or equivalents.

Liberal Arts • French and Italian

French - Primarily for Graduates
9:200 First-Year French Review 3 s.h.
Contents of 9:1.9:2 in one semester.
9:201

Intermediate French I 2 s.h.
Development of functional ability to understand, speak, write French, emphasis on vocabulary building, culture, development of grammatical accuracy. Prerequisite: 9:10 or 9:200 or equivalent.
9:202

Intermediate French II 2 s.h.
Continuation of 9:201. Prerequisite: 9:111 or 9:201 or equivalent.
9:203

Advanced Grammar and Lexicology 3 s.h.
Emphasis on synonyms and antonyms as means of expression.
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 Enlightenment in France 3 s.h.
9:216

Symbolism 3 s.h.
9:220

Topics In French Studies 3 s.h.
9:221

Literature of the Twentieth Century 3 s.h.
9:222

Modern French Novel 3 s.h.
9:223

Literature of Immigration in France 3 s.h.
Contemporary literature written by non-European immigrants in France; issues of identity, institutional power, exclusion, displacement; rhetorical strategies used in these recentered texts to open a discourse/subversive space in canonical literary discourse.
9:227

Studies in the Seventeenth Century 3 s.h.
9:228

Prerequisites: 9:111 and 9:112, or equivalents.

Italian - Primarily for Undergraduates
18:1

Elementary Italian 4 s.h.
For students who have no knowledge of Italian. Offered full semesters. GE: foreign language.
182

Elementary Italian II 4 s.h.
Offered spring semesters. GE: foreign language. Prerequisite: 18:1 or equivalent.
18:11

Intermediate Italian 4 s.h.
Offered fall semesters. GE: foreign language. Prerequisite: 18:2 or equivalent.
18:12

Intermediate Italian II 4 s.h.
Offered spring semesters. GE: foreign language. Prerequisite: 18:11 or equivalent.
18:13

Conversational Italian 2 s.h.
Offered fall semesters. Prerequisite: 18:2 or 18:103.
18:14

Conversational Italian II 2 s.h.
Offered spring semesters. Prerequisite: 18:11 or equivalent.
18:53 special work arr.

Italian-for Undergraduates and Graduates
18103

Intensive Elementary Italian 6 s.h.
Offered spring semesters. GE: foreign language. Prerequisite: two years of another foreign language.
18105

Introduction to Modern Italian Literature 3 s.h.
Prerequisite: 18:12.
18:106

Introduction to Modern Italian Literature 3 s.h.
Continuation of 18:105, but may be taken as independent unit. Prerequisite: 18:12 or equivalent.
18:111

Advanced composition and Conversation 3-4 s.h.
Offered full semesters. Prerequisite: 18:12 or equivalent.
18:112

Advanced Composition and Conversation 3-4 s.h.
Offered spring semesters. Prerequisite: 18:111.
18:114

Studies in Italian Language 3 s.h.
May be repeated. Prerequisite: 18:12 or equivalent.
18:119

Medieval and Renaissance Italian Literature 3 s.h.
18:120

Medieval and Renaissance Italian Literature 3 s.h.
18:142

Topics in Italian Literature 3 s.h.
Topics chosen by genre, gender, artistic and literary movement, or regional and cultural diversity. Prerequisite: 18:111.
18:153 Special Work arr.

18:162 Topics in Italian Culture and Civilization 3 s.h.
18:198 Honors Research and Thesis 3 s.h.

Italian – Primarily for Graduates
18:217 Studies in Italian Literature 3 s.h.
18:279 Special Work arr.

GENETICS
Chair: Jeff Murray [Pediatrics/Biological Sciences]
Professors: Kevin Campbell (Physiology and Biophysics), Wayne Carlson (Biological Sciences), Raymond Crowe (Psychiatry), John Donelson (Biochemistry), Michael Feiss (Microbiology), Joseph Frankel (Biological Sciences), Gary Gussin (Biological Sciences), Victor Ionasescu (Pediatrics), Jim Jung-Ching Lin (Biological Sciences), Robert Malone (Biological Sciences), John Menninger (Biological Sciences), Roger Milkman (Biological Sciences), Shivanad Patil (Pediatrics), William Rhead (Pediatrics), David Soll (Biological Sciences), Erich Six [Microbiology], George Stauffer (Microbiology), Mark Stinski [Microbiology], C. Martin Stoltzus (Microbiology), Wei-Yeh Wang (Biological Sciences), George Winokur (Psychiatry), Chun-Fang Wu (Biological Sciences)
Associate professors: Robert Deschenes (Biochemistry), Jan Fassler (Biological Sciences), Pamela Geyer [Biochemistry], W. Scott Moyer-Rowley (Physiology and Biophysics), Rodney Nagoshi (Biochemistry), Andrew Russo (Physiology and Biophysics), Val Sheffield (Pediatrics), Ming-Chie Shih (Biological Sciences), Edwin Stone (Ophthalmology), Lubomir Turek (Pathology)
Graduate Programs:

Graduate degree: Ph.D. in Genetics

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 the following courses.

1:217 Molecular Genetics 4 s.h.
or
142:210 Molecular Biology I 4 s.h.

One of these:

2:131 Evolution 4 s.h.
2:168 Developmental Genetics 4 s.h.
127:191 Human Molecular Genetics 3 s.h.

Course work in molecular and microbial genetics, cell and development genetics, or human genetics 8 s.h.
Seminar courses approved by the program 5 s.h.
Even more important than formal course work is the opportunity to do significant research in genetics. 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.

Admission

Prospective doctoral students in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, biochemistry, introductory physics, and mathematics, as well as a strong commitment to genetic research and teaching. Students can make up deficiencies in a particular area during their first year of graduate study.

Admission to the program is based on assessment of applicants' undergraduate academic record, performance on the Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative), and letters of recommendation. Admission requirements are not rigid. Most students currently working toward the Ph.D. in genetics at The University of Iowa have undergraduate grade-point averages higher than 3.50, and their GRE Aptitude Test scores (verbal plus quantitative) exceed 1250. Students with lower grade-point averages or GRE scores may be admitted, depending on other indications of academic potential.

The program accepts applications for admission at any time, but students generally begin graduate work during the fall semester.

Financial Aid

All genetics graduate students currently receive a financial stipend that is in the range of $13,545 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 future scientists and 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 Anatomy, 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 Cytogenetics 2 s.h.
- 2:131 Evolution 4 s.h.
- 2:162 Population Genetics and Molecular Evolution 3 s.h.
- 2:164 Topics in Plant Molecular Biology 1-2 s.h.
- 2:168 Developmental Genetics 4 s.h.
- 2:171 Molecular Genetics 4 s.h.
- 2:172 Topics in Molecular Genetics 1-2 s.h.
- 2:176 Topics in Eukaryotic Molecular Biology 2 s.h.
- 2:179 Topics in Molecular Evolution 2 s.h.
- 2:195 Pattern Formation in Development 2 s.h.
- 2:205 Graduate Lectures in Genetics 1 s.h.
- 2:210 Topics in Nematode Development Genetics 1-2 s.h.
- 2:232 seminar: Molecular Genetics 2 s.h.
- 61:179 Bacterial Diversity 4 s.h.
- 61:250 Topics: Bacterial Molecular Pathogenesis 2 s.h.
- 61:268 Molecular Biology of Animal Viruses 3 s.h.
- 70:161 Human Genetics 2 s.h.
- 72:245 Developmental Neurobiology 2 s.h.
- 99:237 Topics in Biochemistry 1 s.h.
- 142:210 Molecular Biology I (prokaryotic) 4 s.h.
- 142:215 Molecular Biology II (eukaryotic) 3 s.h.
- 142:220 Cell Biology I 3 s.h.
- 142:225 Cell Biology II 3 s.h.

Courses

- 127:191 Human Molecular Genetics 3 s.h.
- 127:200 Ethics and Responsible Conduct in Research 1 s.h.
- 127:301 Graduate Research in Genetics arr.

GEOGRAPHY

Chair: Rebecca S. Roberts
Professors: John W. Fuller, James B. Lindberg, George P. Malanson, Michael L. McCulley, R. Rajagopal, David R. Reynolds, Gerard Rashot
Associate professors: Marc P. Armstrong, Rex D. Honey, Frank H. Weirich, Rebecca S. Roberts
Assistant professor: Claire Pavlik
Adjunct faculty Paul Densham, David E. Osterberg
Undergraduate degrees: B.A., B.S. in Geography; minor in Geography
Graduate degrees: M.A., Ph.D. in Geography

Geography is concerned with “place” or “environment” and ongoing forces that promote change within and between human and physical systems. The discipline seeks to explain spatial organization and areal differentiation through detailed studies of significant patterns and processes. 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, 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 in other disciplines who are interested in taking geography courses as part of a liberal education. The department also participates in interdepartmental programs that
have 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.

Transfer students must earn at least 15 semester hours of geography course work in residence at The University of Iowa.

Note: Requirements for the major in geography were changed in 1996. All students who declare a geography major beginning August 26, 1996, must complete the new requirements. Students who declare a geography major before August 26, 1996, may choose to complete either the new or the old requirements (see the 1994-96 General Catalog). Students who wish to use the old requirements must complete the major and graduate by August 2000.

General Requirements

All geography majors must complete the following courses.

44:1 Introduction to Human Geography 4 s.h.
44:3 Introduction to Earth Systems Science 4 s.h.
44:75 Introduction to Cartography 2 s.h.
44:85 Introduction to Economic and Social Statistics 3 s.h.
44:108 Introduction to Geographical Computing 3 s.h.
44:150 Undergraduate Seminar for Geography Majors 3 s.h.

Bachelor of Arts students must satisfy a mathematics requirement consisting of any college-level mathematics course of 3 semester hours or more, except 22M:1, 22M:2, or 22M:3.

Bachelor of Science students must satisfy a mathematics requirement consisting of one of the following sequences.

22M:15-16 Mathematics for the Biological Sciences/Calculus for the Biological Sciences 8 s.h.
22M:25-26 Calculus I-II 8 s.h.
22M:35-36 Engineering Calculus I-II 8 s.h.

All geography majors must complete one of the three course sequences described under “Urban and Regional Studies,” “International Development Studies,” or “Environmental Studies.” Students must pay close attention to the prerequisites of the intermediate and advanced courses in each sequence so that they can develop a program of study that ensures timely satisfaction of required courses’ prerequisites.

GIS EMPHASIS

The University has established a Geographic Information System (GIS) instructional facility. Housed in the Department of Geography, the facility consists of a networked system of student workstations. Students who wish to gain additional experience in the theory and application of geographic information systems (GIS) should take 44:113 Principles of Geographic Information Systems and at least 6 more semester hours in GIS-related courses in geography and cognate fields.

Urban and Regional Studies

The undergraduate program in urban and regional studies is designed for students who are preparing for positions in government and private business, graduate programs in geography, or 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 change; 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
At least one of these:
44:11 Introduction to Social Geography 3 s.h.
44:15 Introduction to Political Geography 3 s.h.
44:30 The Global Economy 3 s.h.

INTERMEDIATE COURSES
At least two of these:
44:132 Industrial Location 3 s.h.
44:133 Introduction to Economics of Transportation 3 s.h.
44:135 Urban Geography 3 s.h.

ADVANCED COURSES
Students are required to take at least one course from each group A and B.

Group A:
44:131 Medical Geography 3 s.h.
44:134 Methods of Transportation Analysis 3 s.h.
44:137 Economic Theory of Location 3 s.h.
44:139 Location Models and Spatial Decision Support Systems 3 s.h.

Group B:
44:161 African Development 3 s.h.
44:166 Contemporary Europe: Interaction and Change 3 s.h.
44:171 Regions and Regionalism in North American Society 3 s.h.
44:176 Social Consequences of Global Change 3 s.h.

International Development

The undergraduate program in international development studies is designed for students interested in the processes of economic, social, and political development, particularly as they affect Third World countries. This concentration gives students a better understanding of regional and national development in international and cross-cultural perspective. Students who are interested in the problems of developing countries and who wish to examine competing theories of development intended to explain international and regional inequalities will find this concentration helpful.

Students concentrating on international development studies are required to complete the following sequence of courses.

INTRODUCTORY COURSES
At least one of these:
44:11 Introduction to Social Geography 3 s.h.
44:15 Introduction to Political Geography 3 s.h.
44:30 The Global Economy 3 s.h.

INTERMEDIATE COURSE
44:94 International Development 3 s.h.

ADVANCED COURSES
44:194 Geographic Perspectives on Development 3 s.h.

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.
44:176 Social Consequences of Global Change 3 s.h.

One of these:
44:161 African Development 3 s.h.
44:166 Contemporary Europe: Interaction and Change 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.

Students concentrating in environmental studies must complete the following sequence of courses. They must take all of the introductory
courses, 15 semester hours of a combination of intermediate and advanced courses, and a cognate cluster of 12 semester hours.

INTRODUCTORY COURSES

29:5 Chemistry and Physics of the Environment (or a more advanced course in chemistry or physics) 3 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.
44:104 Environmental Issues 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 4 s.h.
44:126 Wetlands: Function, Geography, and Management 3 s.h.
44:127 Environmental 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.
44:136 Transportation and the Environment 3 s.h.
44:180 Field Methods: Physical and Environmental Processes 2-4 s.h.

RELATED COURSE WORK

Under the direction of an adviser, students should choose at least 12 semester hours of courses from one of the following clusters. Other relevant courses may be substituted for the courses listed here, with the adviser’s consent.

Biophysical Systems

2:100 Land Plants: An Evolutionary Survey 4 s.h.
2:111 Plant Ecology 4 s.h.
2:116 Field Ecology 4 s.h.
2:119 Plant-Animal Interactions 4 s.h.
2:134 Ecology 4 s.h.
12:108 Introduction to Oceanography 2 s.h.
12:110 Introduction to Remote Sensing 4 s.h.
12:128 Quaternary Palynology and Paleobotany 4 s.h.
12:132 Sedimentology 3 s.h.
12:166 Hydrogeology 4 s.h.
12:172 Glacial and Paleoecology 3 s.h.
12:173 Quaternary Environments 3 s.h.
12:179 Engineering Geology 3 s.h.
Lakeside Laboratory courses (most of the laboratory’s courses are eligible) 4 s.h.

Environmental Management

6E:1 Principles of Microeconomics 3 s.h.
6E:100 Economics for Business Decision Making 3 s.h.
6E:104 Macroeconomic Theory 3 s.h.
6E:119 Economics of the Government Sector 3 s.h.
6E:133 Environmental and Natural Resource Economics 3 s.h.
6F:47 Introduction to Law 3 s.h.
6F:48 Introduction to Management 3 s.h.

30:118 Law and Social Change 3 s.h.
33:153 Hard Cases: Science Policy and Values 3 s.h.
33:155 Risk Technology and the Public 3 s.h.
91:291 International Environmental Law 3 s.h.
102:101 Introduction to Planning and Policy Development 3 s.h.
102:123 Introduction to Environmental Policy and Planning 3 s.h.

Environment and Development

30:150 Political Economy Developing Countries 3 s.h.
44:194 International Development 3 s.h.
44:157 Third World Development 3 s.h.
44:161 African Development 3 s.h.
44:162 Geography of Underdevelopment 3 s.h.
44:163 Geography of the Newly Industrialized Countries 3 s.h.
44:172 Development Planning and Policy 3 s.h.
44:194 Geographic Perspectives on Development 3 s.h.
113:143 Environment and Culture 3 s.h.
113:151 Sociology of the Third World 3 s.h.
113:156 Women’s Roles in Cross-Cultural Perspective 3 s.h.

Nature and Society

1H:165 Landscape in American Art 3 s.h.
5E:1 Principles of Macroeconomics 3-4 s.h.
6E:104 Macroeconomic Theory 3 s.h.
6E:133 Environmental and Natural Resource Economics 3 s.h.
8:100 Introduction to Criticism and Theory 3 s.h.
26:102 Introduction to Ethics 3 s.h.
26:104 Introduction to Philosophy of Science 3 s.h.
26:132 Introduction to Political Philosophy 3 s.h.
30:133 Postmodern Political Theory 3 s.h.
30:138 Current Political Theory 3 s.h.
33:140 Evolution Evolving 2-4 s.h.
33:153 Hard Cases: Science Policy and Values 3 s.h.
33:155 Risk Technology and the Public 2-4 s.h.
44:194 Geographic Perspectives on Development 3 s.h.
91:291 International Environmental Law 3 s.h.
113:143 Environment and Culture 3 s.h.
131:101 Introduction to Women’s Studies 4 s.h.
131:151 Feminist Theory 3 s.h.

Geographic Information Analysis

6C:176 Geospatial Analysis 3 s.h.
6K:176 Management Information Systems 3 s.h.
12:110 Introduction to Remote Sensing 4 s.h.
12:154 Advanced Geocomputing 2 s.h.
12:176 Geostatistics Seminar 3 s.h.
22C:16 Introduction to Programming 4 s.h.
22C:17 Programming Techniques and Data Structures 4 s.h.
44:109 Analytical Cartography 3 s.h.
44:113 Principles of Geographic Information Systems 3 s.h.
44:132 Industrial Location 3 s.h.
44:134 Methods of Transportation Analysis 3 s.h.
44:139 Location Models and Spatial Decision Support Systems 3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

URBAN AND REGIONAL STUDIES TRACK

The B.A. degree requires 12 courses in the major, the B.S. requires 13; in these checkpoints the lower number indicates courses for the B.A., and the higher number indicates courses for the B.S.

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

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

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

Before the eighth semester begins: nine to ten courses in the major

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

INTERNATIONAL DEVELOPMENT STUDIES TRACK

The B.A. requires 13 courses in the major, the B.S. requires 14; in these checkpoints the lower number indicates courses for the B.A., and the higher number indicates courses for the B.S.

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

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

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

Before the eighth semester begins: ten courses in the major

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

ENVIRONMENTAL STUDIES TRACK

The B.A. requires 18 courses in the major, the B.S. requires 19; in these checkpoints the lower number indicates courses for the B.A., and the higher number indicates courses for the B.S.

Before the third semester begins: B.S. — at least one course in the major and one-quarter of the semester hours required for graduation; B.A. — one-quarter of the semester hours required for graduation

Before the fifth semester begins: six to seven courses in the major and at least one-half of the semester hours required for graduation
Before the seventh semester begins: 12-13 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 15-16 courses in the major

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

Honors

The honors major is for students of superior ability who want to pursue studies beyond the typical undergraduate level. To graduate with honors in geography, students must be admitted to both the University Honors Program and the honors program in geography by the first semester of the senior year. They must maintain a grade-point average of 3.20 in all University work and a 3.40 in geography. They also must prepare and successfully defend an honors thesis, which consists of original research under the direction of a faculty member. The thesis is assessed by a three-member faculty committee.

Students complete the thesis through a year-long tutorial in 44:198 Honors Tutorial and 44:199 Honors Thesis. The senior course 44:150 Undergraduate Seminar for Geography Majors may be substituted for 44:199 Honors Thesis, provided the student continues work on the thesis under the direction of a faculty member.

Minor

To minor in geography, a student must complete at least 15 semester hours in geography courses with a grade-point average of at least 2.00. Twelve of the 15 semester hours must be taken at The University of Iowa in 100-level courses. Minors are encouraged to select one of the department’s three areas of concentration—urban and regional studies, international development studies, or environmental studies—and to take courses listed in that concentration. Minors who wish further assistance in selecting courses may contact the department secretary to request assignment of a minor adviser.

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 participate in cooperative training assignments related to their academic programs.

Courses for Nonmajors

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 44:1 Introduction to Human Geography, 44:11 Introduction to Social Geography, 44:19 Contemporary Environmental Issues, and 44:30 The Global Economy are approved by the College of Liberal Arts for General Education in social sciences; 44:157 Third World Development Support is approved for General Education in foreign civilization and culture; 44:161 African Development is approved for General Education in social sciences and foreign civilization and culture; and 44:3 Introduction to Earth Systems Science is approved for General Education in natural sciences. These courses serve as part of a liberal education.

Other courses may be attractive as individual electives. These include 44:15 Introduction to Political Geography, 44:35 World Cities, 44:126 Wetlands: Function, Geography, and Management, 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 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 provides opportunities for all graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instructors.

Programs of Study

The faculty in the Department of Geography specialize in three broad areas of geographic inquiry: social-spatial theory, environmental systems, and measurement, modeling, and computation. By choosing appropriately from these three areas, students can develop programs in areas such as economic geography, political geography, biogeography and geomorphology, environment and society, regional development, and GIS and spatial analysis. For the M.A. and Ph.D. degree, students are required to attain and demonstrate competence in a specific area of geography, across the breadth of geography, and in geographical methods.

Competence in a specific area in geography is achieved by appropriate course work chosen in consultation with an adviser and committee. Course work must include at least one seminar for the M.A. and at least two taught by different faculty members for the Ph.D. Work may include courses in cognate fields; students coming to the program with degrees in disciplines other than geography may already have cognate strength. Students achieve competence across the breadth of geography through appropriate course work in areas outside their specific area. This core course work consists of at least one course in each of the three areas of departmental specialization (social-spatial theory, environmental systems, and measurement, modeling and computation). Students who come to the program with a degree in geography may have met this requirement already. In addition, students must enroll in 44:350 Colloquium every semester in residence.

Competence in methods is achieved by appropriate course work in an area related to the student’s specialty. This competence must be in an area broader than that needed to complete a research paper or dissertation alone—it must be broad enough to provide a base for understanding the literature in the area and in the future. 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 in geography. A strong 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 chosen areas. Credit received for such courses cannot be applied to the requirements for a degree.

Master of Arts

The M.A. is designed to be completed in four semesters. It requires a minimum of 30 semester hours of graduate work, of which 15 semester hours must be earned in courses numbered 200 and above. However, most students typically accumulate 40 to 48 semester hours of graduate credit in completing the M.A. Students are advised to use these additional hours to increase their breadth of knowledge in geography and to tailor their programs of study to their individual interests. A maximum of 6 semester hours may be earned for thesis work.

Competence in a specific area of geography, across the breadth of geography, and in geographical methods is demonstrated by completion of appropriate course work and either a research paper or an M.A. thesis. The M.A. is awarded upon completion of the research paper and an M.A. exam, completion and defense of an M.A. thesis, or completion of the comprehensive exams for the Ph.D.

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 a four- to five-year postbaccalaureate program. Students can enter the program directly from the B.A. or B.S. or with advanced standing corresponding to their previous graduate education. Students must fulfill all departmental requirements for the M.A. except for the M.A. exam. In addition, competence in a specific area of geography, across the breadth of geography, and in geographical methods is demonstrated by the
completion of an original research paper, the writing of an area review paper, passing comprehensive examinations, and completion and defense of a dissertation.

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 who complete the M.A. with 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. Prior to taking the comprehensive examination, which consists 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.

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 his or her 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.

Financial Aid

A number of graduate appointments as teaching or research assistants are available. In addition, a number of fellowships are available for outstanding applicants and underrepresented minorities. Awards are based on merit. In making awards the department pays particular attention to grade-point average, GRE score, letters of recommendation, and how well the student’s objectives fit with departmental specialization. Applications for graduate appointments must be received by February 1. Applicants for fellowships should complete their applications by January 15.

Facilities

The department houses a geographic information systems and spatial analysis laboratory equipped with a variety of workstations and peripherals. These UNIX, DOS, and Macintosh workstations support a variety of GIS software packages, including ARC/INFO, MGE, IDRISI, Atlas/GIS, MAPINFO, Transcad, and GIS Plus. The department also participates in an advanced GIS facility in the Center for Global and Regional

Environmental Research. Departmental computers are linked to the University’s communication network, which provides access to the World Wide Web and external computing resources.

The department recently began operating a state-of-the-art Geographic Information Systems (GIS) instructional laboratory equipped with 20 networked student workstations, instructional support technology, and a suite of peripherals. 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; a geocomputing laboratory that houses dedicated workstations and a parallel computing system for watershed and geomorphic modeling; an environmental instrumentation laboratory for design and preparation of field instruction systems; and a variety of field equipment, from data loggers to electromagnetic flow meters.

The map collection in the University’s Main Library contains more than 115,500 maps, a total of 3,600 atlases 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

Primary for Undergraduates

44:00 Cooperative Education Training 0 s.h.
44:11 Introduction to Human Geography 4 s.h. Application of geographic principles to contemporary social, economic, and political problems; urban growth; problems of the ghetto; diffusion of innovations; territoriality and perception. GE: social sciences.
44:12 Introduction to Earth Sciences System 4 s.h. Elementary principles of physical geography: physics of weather and climate, hydrological systems, geomorphological and geological forces, pedological processes, and ecological processes and patterns; geographic explanation of physical environment, with principles applied to the human use system; environmental pollution and natural hazards. GE: natural sciences.
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 disorganization; social systems including education, religion, recreation, medical, social services, diffusion of ideas and traits over space. GE: 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, electoral geography.
44:19 Contemporary Environmental Issues 3 s.h. Political, economic, cultural, technologic, ecological, and ethical issues associated with natural resource and environmental problems, including population, global climate change, food production, tropical deforestation, soil erosion, waste management. GE: social sciences.
44:30 The Global Economy 3 s.h. Location and spatial organization of the world’s major types of economies: agriculture, energy, and minerals, manufacturing, transportation; trade and service centers. GE: social sciences.
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.
44:75 Introduction to Cartography 2 s.h. Cartography and map analysis; history of cartography, map projections and scale, symbolization, data collection and cartometry, computer mapping, remote sensing, geographic information systems.
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 and inference, regression analysis, simple forecasting methods. Same as 6E:30.
44:94 International Development 3 s.h. Theories of international development, political economy, development policy and planning, empirical analysis of conditions, policies, experiences of selected Third World countries. Prerequisite: 44:1.
44:100 Readings for Undergraduates 3-4 s.h. Supervised readings in geography. Consent of instructor required.

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: 44:3 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, earth flow; erosion, transport, deposition 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 Biogeography 2-3 s.h. Distribution and abundance of plants and animals, spatial patterns and processes, and temporal dynamics of succession, response to climate change, and evolution; methods applied to the study of vegetation and plant community patterns. Prerequisite: 44:3 or 2:11 or consent of instructor. Same as 2:103.
44:104 Environment and Development 3 s.h. Environmental impacts of industrial and rural development explored though Third World (Latin America, Africa, South and East Asia) case studies; environmental degradation from perspective of political economy and ecology; class, gender, and indigenous peoples’ issues; industry-agriculture linkages.
44:108 Introduction to Geographical Computing 3 s.h. Computer use for spatial problem solving; representation of geographical data, sampling and spatial statistics, overview of GIS and its use in human and physical geography. Prerequisites: 44:75 and 44:85.
44:109 Analytical Cartography 3 s.h. Design and implementation of computer algorithms for processing digital geographical data, map projections and conversion, affine transformations, data capture programs, cartographic data structures, generalization, fractals, interpolation. Prerequisite: 44:75.
44:113 Principles of Geographic Information Systems 3 s.h. Issues in establishment of geographic information systems: spatial data encoding, raster-vector options, spatial and attribute resolution, cartographic data models, linkages to spatial analysis procedures, display techniques for decision support, institutional setting. Prerequisite: 44:75.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>44:00</td>
<td>Cooperative Education Training</td>
<td>0 s.h.</td>
<td></td>
</tr>
<tr>
<td>44:11</td>
<td>Introduction to Human Geography</td>
<td>4 s.h.</td>
<td>Application of geographic principles to contemporary social, economic, and political problems; urban growth; problems of the ghetto; diffusion of innovations; territoriality and perception. GE: social sciences.</td>
</tr>
<tr>
<td>44:12</td>
<td>Introduction to Earth Systems</td>
<td>4 s.h.</td>
<td>Elementary principles of physical geography: physics of weather and climate, hydrological systems, geomorphological and geological forces, pedological processes, and ecological processes and patterns; geographic explanation of physical environment, with principles applied to the human use system; environmental pollution and natural hazards. GE: natural sciences.</td>
</tr>
<tr>
<td>44:11</td>
<td>Introduction to Social Geography</td>
<td>3 s.h.</td>
<td>Spatial considerations of population growth and distribution; minorities within a population; poverty; housing social organization and disorganization; social systems including education, religion, recreation, medical, social services, diffusion of ideas and traits over space. GE: social sciences.</td>
</tr>
<tr>
<td>44:15</td>
<td>Introduction to Political Geography</td>
<td>3 s.h.</td>
<td>Emphasis on application of geographical and economic theory in understanding historical development and restructuring of political economies at global, national, and local levels; development of nation states, nationalism, imperialism, geopolitics, economic restructuring, electoral geography.</td>
</tr>
</tbody>
</table>

Financial Aid

A number of graduate appointments as teaching or research assistants are available. In addition, a number of fellowships are available for outstanding applicants and underrepresented minorities. Awards are based on merit. In making awards the department pays particular attention to grade-point average, GRE score, letters of recommendation, and how well the student’s objectives fit with departmental specialization. Applications for graduate appointments must be received by February 1. Applicants for fellowships should complete their applications by January 15.
44:121 Natural Resources Policy 3 s.h.
Geological, cultural, political, economic, and ethical dimensions of natural resource policy; substantive and theoretical issues from the natural sciences, social sciences, and humanities as parts of a conceptual framework for analyzing 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.
Varied natural environments of the United States; problems arising from conflicting land uses; consideration of public land use policy, environmental impacts of different land uses, problems of habitat preservation and endangered species. Prerequisite: 44:1 or 44:19 or consent of instructor.

44:123 Landscape Ecology 3 s.h.
Effects of spatial pattern on processes in ecology; characteristics of matrix, patch, corridor, fragmentation, deforestation, habitat loss; spatial flows of energy, matter, genetic information; relationship to human impact, global climate change. Prerequisites: 44:103 or a 100-level course in ecology.

44:124 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; 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 methodologies; emphasis on cost-benefit risk, cost-effectiveness and incremental analysis, and overlay and graphic techniques; optimal resource use, system simulation; field trips to local environmental control facilities. Prerequisites: 44:19, and 29:5 or equivalent.

44:126 Wetlands: Function, Geography, and Management 3 s.h.
Biogeochemical aspects of water resources production; geographical basis of biophysical processes in drainage basins; spatial aspects of stream ecology; regional characterization of wetland structure and process. Prerequisite: 2:111 or 44:101 or 44:102 or 44:103.

44:127 Environmental Quality: Science, Technology, and policy 3 s.h.
Geographical perspectives in the study and interpretation of chemicals in the environment; environmental standards under existing laws; local, regional, national, international case studies in environmental protection; socioeconomic and institutional considerations in designing environmental protection strategies. Prerequisite: 44:85 or equivalent or consent of instructor.

44:128 Drainage Basin: Form and Process 3 s.h.
Hydrological principles, stream channel processes, and fluvial geomorphology of 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: 44:85, and 44:102 or a 100-level geology or hydraulics course. same as 53:128.

44:129 Water Resources Management 3 s.h.
Application of hydrological information in water resources management; aspects of water quantity and quality, groundwater availability, water use and treatment, resource development, political and administrative issues; basin management problems- forestry, agriculture, urbanization, floods, droughts. Prerequisite: 44:102 or 44:128 or equivalent, and 44:124 or 44:125 or equivalent.

44:131 Medical Geography 3 s.h.
Provision of health care in selected countries, with particular reference to the Third World; focus on problems of geographic, economic, cultural, political, geographic, and religious issues. health services; disease ecology, prospective payment systems, privatization, medical pluralism.

44:132 Industrial Location 3 s.h.
Theory of location and analysis of production characteristics, classical location theory, behavioral analysis of location decision-making, analysis of structural economic change, industrial restructuring processes, regional impact of industrial change, regional industrial restructuring processes, policies of regional economic development, political impact of industrial production. 1-3 s.h.

44:133 Introduction to Economics of Transportation 3 s.h.
Overview of transportation markets (intercity, rural, urban) and transportation modes (railroads, highways, air carriers, waterways), regulation, finance, physical distribution issues. Same as 62:145, 102:133.

44:134 Methods of Transportation Analysis 3 s.h.
Conceptual basis for predicting effects of transportation policy measures on system performance; transportation measurements; introduction to travel demand modeling; introduction to system performance modeling, network analysis, equilibrium. Prerequisites: 44:85 and a previous transportation course, or graduate standing. 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, urban environment, evolution of urban systems, emergence of the capitalist city, urban social and residential differentiation, the politics of uneven development Prerequisite: 44:1 or 44:15.

44:136 Transportation and the Environment 3 s.h.
Environmental impact of alternative modes of transportation; history of U.S. environmental legislation on transportation; methods of environmental impact analysis, costs, benefits of implementing policies, procedures designed to protect environment.

44:137 Economic Theory of Location 3 s.h.
Behaviorally-based location theories for social and economic activities traced from their classical origins to use contemporary literature where both descriptive (e.g., central place theory) and prescriptive (e.g., locations-allocation) models of multiple location decisions exist; relationship between location-allocation models and competitive location theory. Prerequisites: 6E:1 or graduate standing, and 44:30 or 44:132; or consent of instructor.

44:138 Locational Models and Spatial Decision Support Systems 3 s.h.
Application of location models within GIS environments to support decision making; small area demographic forecasting; location-allocation models, regional development models, other spatial analysis methods used to support spatial decisions. Prerequisite: 44:108 or 44:113.

44:143 Urban Transportation Policies, institutions for managing urban transport, production, pricing, distribution of transit and highway services; city case studies, urban freight issues. Prerequisites: 6E:1 and 6E:2, or 44:133. 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: 44:75, 44:85, and 44:108.

44:151 Senior Thesis 3 s.h.
Original research. Open only to seniors. Consent of instructor required.

44:157 Third World Development Support 3 s.h.
Critical analysis of theories, policies, programs, practices of Third World development; role of the social scientific support needed to understand and accelerate the process; analysis of historical trends and potential implications of organized development aid since its inception in 1945. GE: foreign civilization and culture. Same as 19:157.

44:161 African Development 3 s.h.
Problems of economic, political, spatial integration in Africa; patterns and processes of economic development and nation building. GE: foreign civilization and culture or social sciences. Prerequisite: 44:94. Same as 50:146, 141:146.

44:162 Geography of Underdevelopment 3 s.h.
Spatial implications of the economic, social, and political institutions affecting contemporary Third World countries; political economy of development and underdevelopment studied 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 in the northern Mexican maquila industry. Prerequisites: 44:85 or 44:94.

44:165 Contemporary Europe: Interaction and Change 3 s.h.
Contemporary Europe, with focus on societies’ problems, attempted to resolve them; interactions within and among European countries, between Europe and the rest of the world. Prerequisites: 44:15 or 44:30, and 44:155.

44:166 Environmental Sociology 3 s.h.
Analysis of public policy, including social conflict over the action of the state, actual adoption of policies, and policy consequences; analysis for public policy, including alternative goals, policy planning, and policy implementation. American and foreign content. Prerequisite: 44:1.

44:171 Regions and Regionalism in North American Society 3 s.h.
Historical and contemporary perspectives on place, regions, nationalism in North American society. Prerequisites: 44:15 or 44:35 or senior standing or consent of instructor.

44:172 Development Planning and Policy 3 s.h.
Exploration of the role of economic, political and social development: origins, goals, formulation, execution, results; policy analysis methods. Prerequisites: 44:85 and 44:94.

44:176 Social Consequences of Global Change 3 s.h.
Social consequences of economic globalization: urbanization, technological change, and penetration of global capital, its impacts on gender relations, ethnic identity and significance, other social structures.

44:180 Special Topics 3 s.h.
Prerequisite: prior or concurrent satisfaction of all other international development track requirements.

44:183 Special Topics 3 s.h.
Contemporary fields of inquiry, such as political economy, regional African development, biophysical systems, GIS, locational analysis, water resources, geography, demographic analysis, analysis, urbanization, transportation. May be repeated.

44:189 Honors Thesis 3 s.h.
Open only to honors students. Consent of instructor required.

44:199 Honors Thesis 3 s.h.
Original research. Open only to honors students.

For Graduates

44:200 Readings 3 s.h.
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 methodologies and methodologies of modern geography, with emphasis on philosophical and ontological issues; discussion of positivism (empiricism), its variants, and its alternatives in the light of past and current research.

44:216 Behavioral Analysis in Geography 3 s.h.
Relationship between human behavior and the social 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; social construction of nature — ecological models, ecofeminism, culture theory, ecofeminism, poststructural/postmodernist theories, political ecology, environmental history. Prerequisite: 44:121 or consent of instructor.

44:222 Environmental Social Movements 3 s.h.
Processes of mobilization and resolution in environmental conflicts, from perspectives of public choice, liberal and radical theory; relationships to new social movements; applications to environmental movements in First and Third Worlds.

44:225 Environmental Social Movements 3 s.h.
Linear optimization and related models; recent applications in water resources management, pollution control, economic, public policy; potential future applications in designing water quality monitoring networks. Consent of instructor required.

44:226 Advanced Biogeography 3 s.h.
Current questions on spatial organization of organisms, spatial patterns of biodiversity, environmental gradients.
44:227 Environmental Quality Science, Technology, and Policy 3 s.h.
Geographical perspectives in the study and interpretation of chemicals in the environment; environmental standards under existing laws; local, regional, national, international case studies in environment and health; socioeconomic and institutional considerations in designing environmental protection strategies.

44:228 Advanced Earth Surface Processes 3 s.h.
Theoretical concepts and empirical studies of hydrologic, climatic, geographic processes as related to the earth’s surface: measurement, analysis, modeling; drainage basin analysis and modeling; responses to climatic 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, geographic principles and processes within drainage basin systems; spatial and temporal variation; integration of water distribution processes, hydrologic data, flow and sediment transport mechanisms, modeling. Consent of instructor required. Prerequisite: 44:128 or equivalent.

44:230 Advanced Drainage Basin Analysis 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 44:226.

44:246 Advanced Landscape Ecology 3 s.h.
Current questions of effects of spatial structure on ecological processes; ecoregions and boundaries, metapopulations, pattern metrics.

44:248 Theoretical and Practical Approaches to the Study of Economic and Political Change 3 s.h.
The impact of social change and political decision processes on environmental systems; spatial and temporal variation; integration of water distribution processes, hydrologic data, flow and sediment transport mechanisms, modeling. Consent of instructor required. Prerequisite: 44:128 or equivalent.

44:250 Advanced Geographic Information Science 3 s.h.
Current theoretical research issues in geographic information science; intensive readings. Prerequisite: 44:113 or consent of instructor.

44:251 Advanced Field Methods: Environmental 2-4 s.h.
Prerequisite: strong background in physical geography or consent of instructor. Same as 12:228.

44:270 Topics in Geographic Information Science 3 s.h.
The practical applications of geographic information science to various disciplines.

44:297 Special Topics arr.
Current topics in political geography or geopolitics; intensive readings. Prerequisite: French, German, or Russian, and the social science prerequisites –paleontology, geology of Iowa, and several advanced courses with few prerequisites. consent of instructor.

44:308 Research Seminar: Quantitative Methods, Computer Methods, and Modeling 2-3 s.h.
Prerequisite: 44:128 or equivalent.

44:315 Research Seminar: Political Geography arr.

44:326 Travel Demand Modeling 3 s.h.
Same as 44:226.

44:327 Research Seminar: Environmental and Society STr.

44:328 Research Seminar: Physical Geography STr.


Prerequisite: 44:113.

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 7D-301, 34:279.

44:350 Geography Colloquium arr.

44:394 Research Seminar: Regional Development 3 s.h.
Graduate-level research for Ph.D. students, generally post-comprehensive.

44:415 Research: Political Geography Graduate-level research for Ph.D. students, generally post-comprehensive.

44:440 Research Environmental systems Analysis arr.

44:441 Research: Locational Analysis arr.

44:445 Research in Political Geography/ Economy Graduate-level research for Ph.D. students, generally post-comprehensive.

44:450 Thesis arr.

GEOLOGY
Chair: Philip H. Heckel

Assistant professors: James E. Faulds, You-Kuan Zhang
Adjunct assistant professors: Ray Anderson, Michael Burkart, A. Umran Dogan, R. Sanders Rhodes II
Adjunct instructor: Julia Golden

Graduate degrees: B.A., B.S. in Geology; minor in Geology
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 Education Program 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 science prerequisites –paleontology, geology of Iowa, remote sensing, geomorphology, and oceanography.
Bachelor of Science

The Bachelor of Science professional program in geology is designed to prepare students for immediate employment after graduation or for entering a graduate program in geology. The B.S. requires a minimum of 38 semester hours of departmental work (18 courses), including the following course work.

One of these:
- 12:3 Earth History and Resources 4 s.h.
- 12:5 Introduction to Geology (preferred) 4 s.h.

One or both of these:
- 12:4 Evolution and the History of Life 4 s.h.
- 12:109 Advanced Historical Geology: Iowa 3 s.h.
- 12:41 Mineralogy 4 s.h.
- 12:52 Elementary Petrology 4 s.h.
- 12:92 Structural Geology 5 s.h.
- 12:93 Geologic Field Methods 2 s.h.
- 12:113 Summer Field Course 6 s.h.
- 12:121 Principles of Paleontology 3 s.h.

At least two elective geology courses 6-7 s.h.

At least 10 semester hours of college-level mathematics, including one of these:
- 22M:22 Calculus and Modeling II 4 s.h.
- 22M:26 Calculus II 4 s.h.
- 22M:36 Engineering Calculus II 4 s.h.

The following course work in chemistry, physics, and biological sciences (these are minimum requirements):

College-level chemistry, including at least one course that involves a laboratory 8 s.h.

College-level physics 8 s.h.

At least one biological science course that includes a laboratory 8 s.h.

RECOMMENDED OPTIONS

In order to be well prepared for graduate work or professional-level employment, all B.S. candidates are urged to take at least one course from each of the following groups. Students may add or substitute other geology courses for these recommended courses, depending on their goals.

Group A:
- 12:108 Introduction to Oceanography 2 s.h.
- 12:110 Introduction to Remote Sensing 4 s.h.
- 12:166 Hydrogeology 4 s.h.

Group B:
- 12:132 Sedimentology 3 s.h.
- 12:135 Depositional Environments 2-3 s.h.
- 12:161 Principles of Stratigraphy 3 s.h.

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 a student for an entry-level professional job 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 required course work for the B.A., carefully scheduled “track” courses may satisfy General Education Program requirements as well as geology elective requirements. The B.A. requires a minimum of 35 semester hours of departmental work, including the following required course work.

One of these:
- 12:3 Earth History and Resources 4 s.h.
- 12:5 Introduction to Geology 4 s.h.
- 12:8 Introduction to Environmental Geology 4 s.h.

*Students may not earn credit for both 12:3 and 12:5, but they may earn credit for 12:8 in addition to either 12:3 or 12:5. Students planning careers in the environmental sciences should take 12:8.

One, two, or all of these:
- 12:4 Evolution and the History of Life 4 s.h.
- 12:109 Advanced Historical Geology: Iowa 3 s.h.
- 12:121 Principles of Paleontology 3 s.h.
- 12:41 Mineralogy 4 s.h.
- 12:52 Elementary Petrology 4 s.h.

One to four of these:
- 12:92 Structural Geology 5 s.h.
- 12:132 Sedimentology 3 s.h.
- 12:161 Principles of Stratigraphy 3 s.h.
- 12:166 Hydrogeology 4 s.h.

The following course work in mathematics and chemistry (these are minimum requirements):

College-level mathematics: may include computer science and statistics 10 s.h.

College-level chemistry, including a laboratory course or section 8 s.h.

Field requirement: Students may take two semesters of 12:16 or 12:18 or 12:116, or they may take one semester each of two of these semesters (total of 4 s.h.). Or they may take one semester of either 12:93 or 12:113, or the Lakeside session.

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, flexible, and include desirable optional courses that go beyond the minimum requirements for either the B.S. or B.A. degrees. Although 12:8 Introduction to Environmental Geology and 44:19 Contemporary Environmental Issues are not listed in these tracks, geology majors whose study is environmentally oriented are expected to take them in addition to 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 is unlikely that a student could complete all courses in any particular track during the four-year degree program because of time constraints, prerequisite scheduling, or limited enrollment. Students interested in the environmental application of geology may find one or more courses in any of the following clusters to be of interest. Students should consult with their academic advisers, and in some cases with course instructors, prior to registering for environmental track courses.

Courses marked (*) can be used to satisfy College Liberal Arts General Education Program requirements. Geology courses marked (**) may be used to satisfy a geology course requirement.
Geology degrees require field trip experiences, many of which take place during vacation periods during or between semesters, or during the summer session. This listing does not show the field trip requirements.

Before the third semester begins: competence in math through trigonometry, Chemistry 4:7 or 4:13, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: three to five courses in the major (including the remainder of the chemistry requirement and continuation of the mathematics requirement) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: seven to 11 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 10-14 courses in the major

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

Honors
Qualified students may earn a degree with honors in geology. Honors program students must elect a senior thesis and maintain a 3.20 cumulative grade-point average in order to graduate with honors.

Minor
A minor requires at least 15 semester hours of geology courses with a grade-point average of 2.00 or higher. 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
- 12:52 Elementary Petrology
- 12:92 Structural Geology
- 12:121 Principles of Paleontology
- 12:132 Sedimentology
- 12:161 Principles of Stratigraphy
- 12:180 Environmental Geophysics

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 do graduate work in geology must 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 must deliver a 15-minute presentation about their 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 oral or poster presentations at local, regional, national, or international meetings; presentations as part of a Friday seminar; and informal brown-bag lunch presentations.

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 students for professional careers in geology or for more advanced and specialized studies—although in certain situations and with faculty approval, students may pursuit already specialized programs 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. The student also must develop a satisfactory research plan, as outlined in a thesis proposal submitted for departmental approval. This proposal can, but does not have to be, in the form of an AAPG, GSA, Sigma Xi, or similar grant proposal.

Automatic continuation of financial aid beyond the first year is contingent upon 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 a grade-point average of at least 3.00 on graduate courses taken to satisfy the minimum requirement of 30 semester hours for the degree. At least 24 of the 30 semester hours must be taken 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 fieldwork 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 also must be reposed 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 also 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 in secondary schools 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. Students also must take an appropriate graduate course in another discipline; courses cross-referenced 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 labs (X-ray diffractometers, powder cameras, wet chemistry lab, fluid-inclusion stages, microscopes); sedimentary geochemistry lab (wet chemistry, A.A. spectrophotometry, alpha spectrometry, ion chromatography), sedimentology lab (thin-section lab, petrographic facilities, cathodoluminescope); paleomagnetism lab, including a Molspin magnetometer, thermal and alternating field demagnetizers, and anisotropy of magnetic susceptibility system; paleontology facility (invertebrate, vertebrate, palynological), including a major repository; research equipment for palynology, micropalaeontology, and exploration geophysics; photographic lab; geophysics (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 GIS lab; more than 40 IBM-compatible, Macintosh, and RISC workstations connected by ethernet to the Internet and the University's Information Technology Services (IBM and VAX mainframe computers); remote sensing/CAD/GIS lab; trailer-mounted soil probe; scanning electron microscope; and the geology departmental library, with more than 33,000 volumes and journals and 70,000 maps.

**Field Trips**

Field trips are integral parts of several courses in geology, with frequent weekend general-interest events. Geology of the Iowa City region 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 geode 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 fossil biotas from both glacial and interglacial deposits.

Spring break provides time for longer trips which are available to all geology students. In recent years, students have traveled to Hawaii, Death Valley, the Florida Keys, the southern Appalachians, Arizona, New Mexico, and the Ozarks. Advanced classes visit Colorado, Kansas, Oklahoma, California, and Ontario, Canada.

**Courses**

Not all courses are offered every year.

**Primarily for Undergraduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:000</td>
<td>Cooperative Internship in Geology</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>12:1</td>
<td>Lectures in Earth History and Resources</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>12:2</td>
<td>Lectures in Introduction to Environmental Geology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>12:3</td>
<td>Earth History and Resources</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>12:4</td>
<td>Evolution and the History of Life</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>12:5</td>
<td>Introduction to Geology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>12:6</td>
<td>Lectures in Evolution and the History of Life</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**Cooperative Activities**

The department does 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, Geology, 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.
12:17 Geology of the U.S. National Parks 2 s.h.
Geologic features, geologic history; important biological and archaeological characteristics, with emphasis on features that caused certain areas to be included in national park system. Offered spring semesters. Prerequisite: introductory geology course or consent of instructor.

12:14 Energy and the Environment 3 s.h.
Geologic processes and palaeoenvironments responsible for formation of petroleum, coal, uranium; development of alternative energy sources; environmental impact of exploration, production, use of fossil and alternative fuels. Prerequisite: college-level earth science course or graduate standing or consent of instructor.

12:16 Field Trip 2 s.h.
Area of geographic interest, such as carbonate area of Florida, Rio Grande Rift (New Mexico), Death Valley (California, Nevada), Appalachian Mountains (Virginia). May be repeated. Offered spring break. Consent of instructor required.

12:19 Directed Study arr.
May be repeated. Consent of instructor required.

12:41 Mineralogy 4 s.h.
Crystallography, physical and chemical properties, phase relations, silicate identification. Offered fall semesters. Prerequisites: 12:5; a math course through 223M or equivalent, or consent of instructor. Pre- or corequisite: introductory chemistry.

12:52 Elementary Petrology 4 s.h.
Nature, arrangement, metamorphism petrography of igneous, sedimentary, and metamorphic rocks. Prerequisite: 12:41.

12:92 Structural Geology 5 s.h.
Rock deformation, description, classification of geologic structures such as faults and folds; processes that generate geologic structures; sequence of structural problems; interpretation of geologic maps; field exercises. Prerequisites: 12:52 and 22M.5.

12:93 Geologic Field Methods 2 s.h.
Principles and techniques of basic geologic mapping in the Wasatch and Uinta Mountains, Park City, Utah. Offered in first two weeks of June. Prerequisite: 12:52.

For Undergraduates and Graduates

12:100 Geologic Training Assignment 1-3 s.h.
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 3 s.h.
Basic geomorphic, environmental processes that shape the earth’s surface; emphasis on weathering—mass movement (creep, landslides, earth flow), erosion, transport, deposition by fluid agents (wind, water, ice), methods used to study these processes. Prerequisites: 44:3 or 12:5 or consent of instructor. Same as 44:102.

12:103 Physical Geology 2-3 s.h.
Processes that have generated and continue to alter our physical environment; composition and inhomogeneity of the earth from atomic to planetary level, relative to resource requirements; weathering, erosion, rock deformation, volcanism, mountain building, earthquakes, geomagnetism, continental drift.

12:106 The Way the Earth Works 3 s.h.
Plate tectonics (continental drift and seafloor spreading) and volcanoes, earthquakes, mountains, mineral resources, diversity and extinction of species. Recommended: college-level science course.

12:107 Geologic Orientation 1 s.h.
Degree requirements, programs, field survey of local geology; geotechnical skills, specialized facilities. Graduate standing or consent of instructor required.

12:108 Introduction to Oceanography 2 s.h.
Descriptive, chemical, physical, biological, geological aspects. Offered spring semester. Recommended: knowledge of basic chemistry, biology, physics, earth science.

12:109 Advanced Historical Geology: Iowa Geologic principles through geology of eastern Iowa. Prerequisite: course in earth science or geology.

12:110 Introduction to Remote Sensing 4 s.h.
Remote sensing of the earth’s surface from aircraft, satellites; aerial photography processing; remote sensing systems, methods; data analysis using electromagnetic spectrum and digital processing techniques, including ultraviolet, visible, infrared, microwave; spaceborne; remote sensing applied to geologic and environmental problems. Prerequisite: college physics or physical geology or equivalent.

12:113 Summer Field Course 6 s.h.
Description, mapping of rock units, geologic structure in Wasatch and Uinta Mountains, Park City, Utah. Offered summer sessions. Prerequisites: 12:41, 12:52, 12:92; and 12:93.

12:141 Optical and Analytical Methods 4 s.h.
Theory, practice of studying minerals with a polarizing microscope; detection of igneous, sedimentary, metamorphic rocks in this section; methods for analysis and mineralogical composition of rocks. Offered fall semesters. Prerequisites: 4:7 or 4:13, 12:52, and 29:12 or 29:18.

12:143 Environmental Mineralogy Clay and Zeolite 3 s.h.
Crystal structure, properties, uses of clay minerals; space group symmetry; theory, practice of X-ray powder methods, application to minerals. Prerequisites: college physics and mineralogy, and basic knowledge of computers.

12:149 Elements of Geochemistry 3 s.h.
Elementary chemical principles applied to geologic problems. Prerequisites: 4:7, 4:14, and 12:52; and 4:8 or 4:13.

12:150 Natural Water Geochemistry 3 s.h.
Chemical processes and reactions controlling natural water chemistry; solubility equilibria, thermodynamics of aqueous solutions, properties of ground and surface waters, spatial and temporal evolution of natural waters in different geologic terrains, use of geochronometric techniques; computational work in analytical problems, speciation and mass-transfer models, rock-water interactions. Consent of instructor required.

12:151 Carbonate Geochemistry and Diagenesis 3 s.h.
Geology of carbonate rocks, minerals, carbonates, thermodynamics and equilibria; kinetics of low temperature processes; trace element chemistry; isotopic composition and radiogenic dating; and experimental work on petrographic record of diagenetic changes; chemical analysis of carbonate minerals, rocks, waters; quantification of diagenetic alteration and quantification of rock-water interactions. Consent of instructor required.

12:152 Isotope Geochemistry 3 s.h.
Radiogenic and stable isotope systematics, applications to geologic and environmental problems. Prerequisite: 12:149 or consent of instructor.

12:153 Geocomputing 1-3 s.h.
Computer applications in geology; visualization, data management, interactive modeling, computer graphics. Geology major or graduate standing required. Recommended: 2C7.

12:154 Advanced Geocomputing 2 s.h.
Design of programs with applications in geology; emphasis on interactive modeling, data visualization. Geology major or graduate standing required. Prerequisite: FORTRAN or Pascal or C consent of instructor.

12:156 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. Same as 2:156, 52:156, 60:156.

12:161 Principles of Stratigraphy 3 s.h.
Genesis of sedimentary rocks, geologic time, stratigraphic nomenclature, biostratigraphic and physical correlation methods, mass extinctions, seismic and sequence stratigraphy, basin analysis and modeling, stratigraphic field methods. Offered fall semesters. Prerequisite: 12:52 or consent of instructor.

12:165 Transmission Electron Microscopy and X-ray Microanalysis 3 s.h.
Theory, operation, applications of TEM, STEM, thin film X-ray microanalysis techniques; specimen preparation techniques, including metals, glass, ceramics, minerals. Consent of instructor required. Same as 52:157.

12:166 Hydrogeology 4 s.h.
Groundwater geology, geochemistry, hydrology; regional aquifer systems, groundwater chemistry, quality, contamination and remediation, principles of groundwater flow and contaminant transport, aquifer tests. Senior or graduate standing required.

12:172 Glacial and Pleistocene Geology 3 s.h.
How glaciers behave; how glacial, periglacial materials and landscapes evolve. Pleistocene stratigraphy: physical and historical geology, physical geography, anthropology.

12:173 Quaternary Environments 3 s.h.
Archaeological, botanical, zoological, physical, chemical means of reconstructing ice-age environments; techniques, results, interdisciplinary approach; seminar format emphasis on speaking, writing. Consent of instructor required.

12:174 Quaternary Seminar 1 s.h.
Paleoclimatology, paleoecology, archaeology, geomorphology, glacial geology, other fields that deal with environments of the past 2.5 million years. Same as 113:177.
12:175 Paleocology of Quaternary Mammals 3 s.h.
Identification, biogeography, taphonomy, paleoecology of Pleistocene, Holocene small mammals recovered from paleontological and archaeological sites. Prerequisite: 12:122 or consent of instructor.
12:177 Geologic Illustration 1 s.h.
Instruction and practice in preparing quality illustrations, including outcrops, landscapes, block diagrams, architectural rendering, fence diagrams, plants, animals, fossils, shaded relief, cutaways, schematic perspectives.
12:178 Geostatistics Seminar 3 s.h.
Applications of variograms and kriging to geology, geography, hydrology, GEO-EAS and GEOPACK computer programs used to analyze spatially-variably data collected in participants' specialties. Prerequisite: 22S:120 or equivalent or consent of instructor.
12:179 Engineering Geology 3 s.h.
Geologic principles applied to engineering practice for geologists, civil engineers, environmentalists; dam failure, avalanches, erosion control, tunneling, strip-mine reclamation, landfills, septic systems, river management, floods, coastal management. Junior standing in physical science or engineering.
12:180 Environmental Geophysics 3 s.h.
Earth's physical nature, consequences for our environment and its geologic development internal structure, earthquakes and their prediction, seismology, gravity and isostasy; magnetic field and paleomagnetism, heat flow, radiactivity and age dating, physical methods to monitor the terrestrial environment. Prerequisites: introductory geology and physics.
12:181 Exploration Geophysics 3 s.h.
Techniques used in exploration for oil and gas, minerals, groundwater, subsurface structure; gravity, magnetic, seismic, electrical methods; well logging. Offered spring semesters. Prerequisite: 12: 180; or college geology, physics, and mathematics; or consent of instructor.
12:182 Principles of Economic Geology 3 s.h.
Formation, distribution, economic value of metallic, nonmetallic mineral deposits and processes of deposit formation. Prerequisite: 12:52. Recommended: 12:141.
12:184 Groundwater Modeling 3 s.h.
Principles, equations of groundwater flow and contaminant transport in aquifers; numerical methods, applications of groundwater modeling software; MODFLOW, PATH3D, and MT3D. Prerequisites: 12:166, and 22M:26 or 22M:56. Same as 53:104.
12:186 Petroleum Geology 3 s.h.
Geologic processes that affect petroleum generation, migration, trapping, accumulation; survey of geological, geochemical, geophysical exploration techniques; economic, political factors that influence petroleum exploration, production. Prerequisite: 12:52.
12:188 Environmental Seminar 1 s.h.
Emphasis on current research; hydrogeology, erosion control, and restoration, public health effects of water supplies.
12:191 Geotectonics 3 s.h.
Dynamic processes responsible for crustal genesis, plate movements, mountain building; evidence for continental drift, mid-ocean spreading, plate tectonic theory; sedimentologic, structural, petrologic, geophysical characteristics of major tectonic settings; multidisciplinary approach. Prerequisite: 12:92.

Primarily for Graduates

12:222 Micropaleontology 4 s.h.
Morphology, taxonomy, and evolution of microfossil groups. Prerequisites: 12:121 or 12:161, and college geology; or consent of instructor.
12:228 Advanced Earth Surface Processes 3 s.h.
Theoretical concepts, empirical studies of hydrologic, climatic, geologic processes in relation to the earth's surface: measurement, analysis, modeling of processes; drainage basin analysis, modeling; responses to climatic, environmental change. Graduate standing in geology or geology or consent of instructor required. Same as 44:228.
12:234 Sedimentary Seminar I 1 s.h.
12:235 Sedimentary Seminar II 1 s.h.
Interpretation of depositional environments, geochemistry and diagenesis of sedimentary rock units; detection of large-scale geologic events in earth history. Offered fall and spring semesters. Prerequisite: 12:135.
12:240 Mineralogy Seminar 2 s.h.
12:251 Igneous Petrology 3 s.h.
Phases, equilibria, isotope and trace element geochemistry, geochronology; petrogenesis, differentiation of magmas in context of plate tectonic theory. Prerequisites: 12:52 and 12:141, 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 geological systems; equilibrium and irreversible thermodynamics, phase rule, chemotherapy, solid solutions, chemical potential diagrams, ionic activities in mixed aqueous electrolytes, silicate melts, retrieval of thermodynamic data, evaluation of thermodynamic databases, nucleation, reaction rates, calculation of thermodynamic and kinetic properties of minerals, melts and fluids in natural and experimental geologic systems. Prerequisite: 12:149 or consent of instructor.
12:255 Metamorphic Petrology 3 s.h.
Nature, origin of metamorphic rocks using thermodynamics, experimental data, geologic observations. Prerequisites: 12:52 and 12:141.
12:257 Metamorphic Petrology Seminar 1-2 s.h.
12:261 Regional Stratigraphy 3 s.h.
Contemporary concepts of new developments in global tectonics; detailed stratigraphic analyses of sedimentary basins, areas. Prerequisite: 12:161 or consent of instructor.
12:263 Biostratigraphy 3 s.h.
Principles, methods of biostratigraphic correlation; emphasis on evaluation of current techniques. Prerequisites: 12:161 and 12:222, or equivalents.
12:266 Landfill 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: 12:166.
12:272 Advanced Scanning Electron Microscopy 3 s.h.
Theoretical and practical aspects of high-energy 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 52:272.
12:277 Wetlands 3 s.h.
Wetland hydrology, constructed wetlands; a Midwestern perspective with field trips. Graduate standing required. Prerequisite: 12:161 or equivalent.
12:279 Engineering Geology Field Problems 1 s.h.
12:281 Seismic Exploration 3 s.h.
High-pressure geochemistry, exploration geophysics, physical properties of rocks, computer processing of data. Prerequisite: 12:181.
12:282 Geophysics 1 s.h.
High-pressure geochemistry, exploration geophysics, physical properties of rocks, computer processing of data. Prerequisite: 12:181.
12:288 Paleomagnetism 3 s.h.
Earth's magnetic field, rock magnetism, uses of remanent magnetization in geology, geophysics. Recommended 12:92 and 12:180.
12:293 Advanced Structural Geology 4 s.h.
Kinematics and mechanics of deformed rocks; strain analysis, field investigations of highly deformed rocks. Prerequisites: 12:92 and one year of calculus.
12:296 Seminar: Structural Geology 1 s.h.
Consent of instructor required.
12:298 Soil Genesis and Geomorphology 3 s.h.
Principles of soil classification, soil profile description; influences of geologic materials, climate, biota, geomorphic processes on soil development; labs, field project. Consent of instructor required.
12:300 Research Summer Field and Laboratory 3 s.h.
May be repeated.
12:301 Research: General Geology 3 s.h.
May be repeated.
12:315 Research: Ground Water 3 s.h.
May be repeated.
12:320 Research: Paleontology 3 s.h.
May be repeated.
12:321 Research Micropaleontology 3 s.h.
May be repeated.
12:330 Research: Sedimentology and Sedimentary Petrology 3 s.h.
May be repeated.
12:340 Research Mineralogy 3 s.h.
May be repeated.
12:350 Research: Petrology 3 s.h.
May be repeated.
12:360 Research: Stratigraphy 3 s.h.
May be repeated.
12:370 Research: Geomorphology and Pleistocene Geology 3 s.h.
May be repeated.
12:380 Research Economic Geology 3 s.h.
May be repeated.
12:385 Research: Geophysics 3 s.h.
May be repeated.
12:390 Research Structural Geology 3 s.h.
May be repeated.
12:395 Research in Geologic Remote Sensing 3 s.h.
May be repeated.

GERMAN

Chair: Sarah M.B. Fagan
Professors: Judith P. Alkin, Wolfgang Ertl
Undergraduate degree: B.A. in German; minor in German
Graduate degrees: M.A., Ph.D. in German

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

13:11 Elementary German I 4 s.h.
13:12 Elementary German II 4 s.h.
13:21 Intermediate German I 4 s.h.
13:22 Intermediate German II 4 s.h.
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.

At least five upper-level German courses must be taken at The University of Iowa. Students who have upper-level course work from other institutions should consult with the German Department undergraduate major adviser to determine how much work remains for completion of the major.

**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.

*13: 101 Introduction to German Literature 3 s.h.
13:103 Composition and Conversation I 3 s.h.
13:104 Composition and Conversation II 3 s.h.
13:105 German Cultural History 3 s.h.
13:110 Eighteenth-Century German Literature 3 s.h.
13:111 Nineteenth-Century German Literature 3 s.h.
13:112 Twentieth-Century German Literature 3 s.h.
13:116 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 a course 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 I 3 s.h.
13:104 Composition and Conversation II 3 s.h.
13:107 Introduction to German Linguistics 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.
13:116 Advanced Composition and Conversation 3 s.h.
13:198 Undergraduate Special Topics 3 s.h.
One German department course in literature or culture 3 s.h.

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/or secondary schools must successfully complete the requirements for a major in German and must be admitted to the College of Education’s foreign language teacher education program. Several courses in the College of Education also are required, as is one semester of student teaching in the senior year. Contact the 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.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan.

Before the third semester begins: language competency equal to first-year German and at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: language competency equal to second-year German and at least one-half of the semester hours required for graduation
Before the seventh semester begins: four courses in the major and at least three-quarters of the semester hours required for graduation (Students should be aware that 13:107-13:108 and 13:114-13:115 are offered in alternate years so these courses should be taken as soon as they appear in the course rotation.)
Before the eighth semester: 2-3 additional courses in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Honors**

Honors in German is open to exceptional students who are members of the University Honors Program 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 grade-point average of at least 2.00. Twelve of these semester hours must be in advanced courses (numbered 100 and above) at The University of Iowa. All courses numbered 100 and above count toward the minor except 13:118 and 13:123.

**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 of the required 72 semester hours 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 Funke 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 also may 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 Faeil"hies

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

13:000 Cooperative Education Internship 0 s.h.
13:11 Elementary German I 3-4 s.h.
Understanding and speaking "everyday German"; reading and writing skills; acquaintance with the German-speaking world through discussion, readings, videos. GE: foreign language.
13:12 Elementary German II 3-4 s.h.
Continuation of 13:11. GE: foreign language. Prerequisite: 13:11 or equivalent.
13:13 Intensive Elementary German 6 s.h.
A year in one semester. Open only to undergraduates. GE: foreign language.
13:14 First-Year German Review 4 s.h.
Accelerated course in preparation for third-semester German. GE: foreign language. Prerequisite: two or more years of high-school German.
13:21 Intermediate German I 4 s.h.
Proficiency in spoken and written German; German-speaking cultures of central Europe, their historical background; emphasis on refinement of reading skills. GE: foreign language. Prerequisites: 13:12, 13:13, and 13:14 or equivalent.
13:22 Intermediate German II 4 s.h.
13:25 Intensive Intermediate German 6 s.h.
A year in one semester. Open only to undergraduates. GE: foreign language. Prerequisites: 13:12, 13:13, 13:14, or equivalent.
13:26 Accelerated German Reading I 6 s.h.
First of a two-course sequence; thorough foundation in German grammar and vocabulary, intensive approach to reading German. Open only to undergraduates. GE: foreign language.
13:27 Accelerated German Reading II 6 s.h.
Continuation of 13:26; vocabulary building and extensive reading of sophisticated texts. Open only to undergraduates. GE: foreign language. Prerequisite: 13:26 or equivalent.

For Undergraduates and Graduates

13:100 Individual German arr.
German major or minor, or consent of instructor required.
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; taught in German. Prerequisite: 13:22 or equivalent.
13:104 Composition and Conversation II 3 s.h.
Taught in German. Prerequisite: 13:103 or equivalent.
13:105 German Cultural History 3 s.h.
Emphasis on development of arts, philosophy, literature; taught in German. GE: foreign civilization and culture. Prerequisite: 13:22 or 25 or equivalent.
13:107 Introduction to German Linguistics 3 s.h.
Phonology, morphology, historical development. Prerequisite: 13:22 or equivalent.
13:108 The German Media 3 s.h.
Reading and listening skills; comprehension, reading speed, passive vocabulary building, scanning and skimming, parsing complex constructions through media accounts of current events in German. Offered fall semesters of odd years. Prerequisite: 13:22 or equivalent.
13:109 Regents Program Abroad in Austria arr.
See "Study Abroad" in this section of 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, correspondence; taught in German. 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; taught in German. Offered spring semesters of odd years. GE: foreign civilization and culture. Prerequisites: 13:22 or 13:25 or equivalent.
13:116 Advanced Composition and Conversation 3 s.h.
Speaking and writing in German. Undergraduate standing in German or consent of instructor required. Maybe repeated. Prerequisites: 13:103 and 13:104, or equivalents.
13:118 The Third Reich and Literature 3 s.h.
Nazi literature, literature of the Holocaust and the Opposition, exile literature, in English translation. GE: foreign civilization and culture or humanities.
13:120 Methods: Secondary School Foreign Language 3 s.h.
13:123 Topics in Foreign Language Instructional 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 9:158, 35:117.
13:130 Internship Abroad arr.
Work experience related to student’s major field of study; must require significant use of German language in a German-speaking country; must be arranged in collaboration with University of Iowa Office of Cooperative Education. Corequisite: 13:000.
13:190 Honors Program in German 3 s.h.
Individual work in literature and culture. Prerequisites: three years of college-level German or equivalent, and at least a 3.50 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.
Taught in German. Open only to advanced undergraduates. May be repeated. Consent of instructor required.
Language Courses for Graduate Nonmajors

13:113 intensive Elementary German 4 s.h.
Open only to graduate students.
13:125 Intensive Intermediate German 4 s.h.
Open only to graduate students. Prerequisite: 13:113 or equivalent.
13:126 Accelerated German Reading I 4 s.h.
Open only to graduate students.
13:127 Accelerated German Reading II 4 s.h.
Open only to graduate students. Prerequisite: 13:126 or equivalent.

For Graduates

13:200 Advanced Studies arr.
Special problems of German literature and linguistics. Graduate standing in German required.
13:220 The German Novel 3 s.h.
May be repeated.
13:221 Principles of Teaching and Learning Foreign Languages 3 s.h.
Theoretical foundations of teaching and learning a foreign language; emphasis on practical applications of theories to a language classroom. Same as 9:254, 39:234, 41:234.
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 Novelle 3 s.h.
13:241 History of the German Language 3 s.h.
Same as 101:21.
13:243 Middle High German Emphasis on linguistics. Same as 103:252.
13:244 Middle High German Literature 3 s.h.
13:249 History of the Scandinavian Languages 3 s.h.
Linguistic texts in Danish, Swedish, Norwegian; extensive readings. Same as 103:232.
13:254 Topics in Second Language Acquisition 3 s.h.
Representative topics: acquisition, discourse competence, morphology and syntax, listening comprehension, phonology, vocabulary. May be repeated.
13:255 Semantics 3 s.h.
Meaning in natural language, with focus on German; lexical semantics (sense relations, semantic fields, componential analysis), modality, temporal and spatial deixis, aspect.
13:256 Modern German Syntax 3 s.h.
Analysis of syntax within a generative framework.
13:260 Cultural Studies Seminar 3 s.h.
Cultural practices and traditions, combining textual analysis, theory, history, and anthropological approaches to culture; identity politics, gender, race and ethnicity, class, nationhood, science and ecology, popular culture and its audiences, politics of aesthetics, cultural institutions.
13:271 German Literature of the Baroque 3 s.h.
13:283 The Age of Goethe 3 s.h.
Storm and Stress (Goethe, Schiller, Klinger, Lenz) and the Weimar classicism (1794-1805) of Goethe and Schiller; independence of movements and their theoretical basis (Hölderlin, Winkelman) 70/75% representative works.
13:285 Goethe 3 s.h.
13:291 German Romanticism 3 s.h.
Theoretical basis (Schlegel, Fichte, Schleiermacher, Schelling); representative works by Novalis, Tieck, C. Brentano, L.v. Arnim, B.v. Amin, Grimm, Eichendorff, Wackenroder, other authors; interrelation with painting, music.
13:295 German Literature from Naturalism to Expressionism 3 s.h.
13:298 Special Topics in German Literature arr.
Graduate standing in German required. Maybe repeated.
13:299 Special Topics in German Linguistics 3 s.h.
13:300 Master's Thesis arr.
13:350 Pre-Comprehensive Registration 0 s.h.
13:371 Seminar in Early German Literature May be repeated. 3 s.h.
13:381 Seminar in German Literature of the Eighteenth Century May be repeated. 3 s.h.
13:391 Seminar in German Literature of the Nineteenth Century May be repeated. 3 s.h.
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.

GLOBAL STUDIES

Chair: James McCue (Religion)
Committee members: Stephen Arum (Office of International Education and Semnities), Gregory Hamot (Education), Rex Honey (Geography), William Klipk (Physics), Gerald Sorokin (Political Science), Burns Weston (Law)
Undergraduate degree: B.A. in Global Studies; minor, 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 broad, integrated base for more specialized or advanced work in a variety of academic disciplines, or for the study of law. It also provides a suitable background for work in international business and with international and governmental agencies. Several former students have found positions with international consulting firms, Washington, D. C.-based advocacy offices, and organizations such as the World Bank.

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 the 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. A minimum of 24 of the required semester hours must be earned at The University of Iowa.

Requirements for the major were changed in 1995. Students who declared the major before the first day of fall 1995 classes may complete the major with the old requirements (see the 1994-96 General Catalog), as long as they graduate before August 1999.

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

Students take four courses in all; at least one, and preferably two, in each subdivision.

Politics and Economics

6E:125 International Economics 3 s.h.
16A: 152 United States in World Affairs 3 s.h.
1900-1975 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.

Society and Culture

44:176 Social Consequences of Global Change 3 s.h.
113:156 Women’s Roles in Cross-Cultural Perspective 3 s.h.
113:181 Race, Ethnicity, and International Relations 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.

TOPICAL 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.

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

Note: Graduation in Global Studies is available only to students who earn a grade-point average of 3.20 or higher. Plans of study are developed for each student, based on the student’s interests. Students who do not enter with competency in the language of their area studies choice may need to begin language courses during their freshman year.

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

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

Before the seventh semester begins: a total of 10-18 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: three additional courses in the major

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

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 Program 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, and resolution of violence in the contemporary world.
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.

One of these:
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
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 ability to use a foreign language that is widely used in the world area studied; to foster the ability to use a foreign language that is widely used in the world area studied; and to address some of the sources, dimensions, and policy implications of these value differences; to clarify our own values as they bear on the
analysis of global problems. Students who choose to take three courses in this area should select three courses that bear on the history, culture, and politics of a single world region. 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
47:1 Global Interdependence and Human Survival 3 s.h.
Introductory analysis of the global system and its major problems; basic information, methods of understanding, interconnectedness of problems; identification and evaluation of proposed solutions. Offered fall semesters. GE: social sciences.

4290 Global Studies News Colloquium 2 s.h.
Examination of coverage accorded global issues by U.S. print media; comparison with media coverage in other parts of the world.

47:100 Problems in Global Studies 3 s.h.
May be repeated.

47:105 Individual Projects in Global Studies arr.
May be repeated.

47:111 Methods of Field Study for Undergraduates Doing Fieldwork/Research Abroad 1-3 s.h.
Theoretical frameworks; elementary instruction and practice in techniques of ethnography, oral history, interviewing, archive research.

47:150 Internetworks in International Development 3 s.h.
The Internet and off-line development resources; technical background, accessibility impact; advanced skill development in Internet communication and authoring techniques; no previous knowledge required.

47:160 International Security Affairs 3 s.h.

47:180 Global Studies Seminar 3 s.h.
In-depth exploration of a global problem or geographic area; interdisciplinary approach; guest speakers. May be repeated.

47:193 Human Rights in the World Community 3 s.h.
Problems of Law and Policy
Human rights, their moral and legal basis, their promotion and protection through governments and international organizations; comparative and international analysis of equality, nondiscrimination. Junior, senior, or graduate standing required. Same as 30:177, 91:195.

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 30:173, 91:195.

GREEK
See “Classics.”

HISTORY
Chair: H. Shelton Stromquist
Professors emeriti: Lawrence E. Gelbard, Ralph E. Giesey, Ellis W. Hawley, Sidney Mead, Stew Persons, Alan B. Spitzer
Associate Professors: James L. Giblin, Colin Gordon, Susan Lawrence, Allen Steinberg
Assistant Professors: Sarah Farmer, Kathleen Higgins, Benjamin Kaplan, Leslie Schwalm
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 world studies, ancient civilizations, Asian studies, Latin American studies, Russian and East European studies, and women’s studies.

Undergraduate Program
Baccalaureate graduates in history work in a variety of positions in business, education, public service, advertising, 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 illuminate and expand the meaning of history courses and that introduce information and a variety of approaches to understanding how societies and cultures work.

For example, students majoring in history are encouraged to fulfill the College of Liberal Arts General Education Program requirement in foreign language by choosing a language that fits their interests in history. The history faculty particularly encourages study abroad programs that complement students’ foreign area interests. Majors also are encouraged to improve their writing and speaking skills.

The major is for students with a general interest in history. Students must earn a minimum of 30 semester hours in history courses and present a portfolio of written work. Prominent among the course work is a colloquium, which usually is taken during the sophomore year or the semester after the student elects a major in history. 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.

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 earned at The University of Iowa.

Up to 6 semester hours earned in Guided Correspondence Study courses in history numbered 16:51 and above can be counted toward the 30 semester hours required for the major. Up to 3 semester hours may be counted toward the minor. All correspondence courses must be approved in advance by the history department.

Undergraduate courses are divided into four areas: American history (prefix 16A), European history (16E), non-western world history (16W), and courses that have no area designation (16).

The major requires at least one course each from the American, European, and non-western world history lists.

REQUISITE COURSES

Colloquium
One of these:
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 sophomore year; students who declare history after their freshman year 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, chosen from these:
- 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 in history electives, 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 who wish to qualify for teaching licensure in secondary social studies education must meet the course requirements in American and non-U.S. history indicated below while completing the history major. They also must complete College of Education professional education courses required for teacher licensure.

History course requirements are as follows.

- Courses in U.S. history (16A) 15 s.h.
- Courses in non-U.S. history (16E and 16W – at least one course for each area) 15 s.h.

Courses taken as part of the history major, including the Colloquium for History Majors (if numbered 16A:51, 16E:51, or 16W:51), may be counted as part of the 30 semester hours required for certification.

For certification in secondary social studies, students also must take 15 semester hours of course work in a related area chosen from economics, geography, anthropology, psychology, sociology, or American government. Not all political science courses count toward certification to teach American government. Course content must center around the American political system or American political issues.

For information about the Teacher Education Program (TEP) or the secondary social studies education program, consult the social studies program coordinator at the College of Education.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan.

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

Before the fifth semester begins: two courses in the major (including Colloquium for History Majors) and at least one-half of the semester hours required for graduation.

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

Before the eighth semester begins: two more courses in the major and submission of the portfolio of written work to the student’s adviser.

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

**Honors**

The requirement for entry into the history department’s honors program is the same as that 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 16:91 Honors Thesis and 3 semester hours of 16:92 Honors Thesis in each of two semesters. 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, foundations and nongovernmental organizations, and government or other public service. With additional specialized training, students of history become qualified for careers in archival work, library work, museum work, or historical site preparation and display. Some students enter the joint program leading to degrees in both law and history (see “Joint Law and Graduate Degree 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 listings, 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 6 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 Master of Arts. Students must earn 30 semester hours overall, with 24 of them in history, 12 of which are earned in one major 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 non-Ph.D. track stresses breadth of learning.

Students in the non-Ph.D. track must take at least 6 semester hours in each of two other 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 research seminars (not fewer than three) or graduate readings courses. At least five of these eight courses must be completed before the student takes the comprehensive examination. Courses taken at the M.A. level may be counted toward this requirement. The candidate also must take a graduate course in the philosophy of history, historiography, or methods of historical research.

The department has no 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.

<table>
<thead>
<tr>
<th>The ancient world</th>
<th>Medieval Europe</th>
<th>United States</th>
<th>Europe, modern</th>
<th>Russia and the former Soviet Union</th>
<th>India</th>
<th>Africa</th>
</tr>
</thead>
</table>

The student may construct another field, 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 focuses on issues and problems arising from the examination papers.

The candidate must submit to the dissertation committee a written prospectus for the dissertation no later than the semester following completion of the comprehensive exams. The committee consists of at least five members, including at least one member from outside 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-or-two-page personal statement of the applicant’s purpose in taking graduate work. All application materials are due by January 10.

### Special Facilities

The University of Iowa 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 Program requirement in historical perspectives. Some courses are approved in the foreign civilization and culture General Education area. They cannot be taken pass/nonpass, even when they are taken as electives. Majors should take 16:51, 16A:51, 16E:51, or 16W:51 in the sophomore year or in the first semester after declaring the major. Other courses numbered below 200 are open to freshmen who have already satisfied the General Education Program requirement in historical perspectives. Courses numbered 200 and above are offered as occasion demands.

#### For Undergraduates

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:00</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>16:1</td>
<td>European Experience I: Ancient and Medieval</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>16:2</td>
<td>European Experience II: Early Modern World</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>16:3</td>
<td>European Experience III: The Modern World</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>16:4</td>
<td>Civilization of Asia: Premodern China and Japan</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:5</td>
<td>Civilization of Asia: Modern China and Japan</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:6</td>
<td>Civilization of Asia: South Asia</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>16:7</td>
<td>Issues in Human History Foundations of Science from Copernicus to Einstein</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:10</td>
<td>Issues in Human History The Political World and General History</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

#### For Undergraduates and Graduates

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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 World and General 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 its Human History Gender 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>16:20</td>
<td>Issues in Human History Medieval Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:22</td>
<td>Issues in Human History Nature and Society in Historical Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:23</td>
<td>Issues in Human History: European Politics and Society</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>16:51</td>
<td>Colloquium for History Majors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:52</td>
<td>Colloquium for History Majors (American)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:53</td>
<td>Colloquium for History Majors (European)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:54</td>
<td>Colloquium for History Majors (World)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16:90</td>
<td>Individual Study Undergraduate</td>
<td>arr.</td>
</tr>
</tbody>
</table>

#### For Undergraduates and Graduates

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:100</td>
<td>Historical Background of Contemporary Issues</td>
<td>arr.</td>
</tr>
</tbody>
</table>

May be repeated.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16W:110</td>
<td>Topics in Latin American History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:111</td>
<td>Colonial Latin America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:112</td>
<td>Introduction to Modern Latin America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:113</td>
<td>The Mexican Revolution</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:116</td>
<td>Women in Latin America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:117</td>
<td>History of Brazil</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
American History

16A:61 American History 1492-1877 3 s.h.
Discovery through Civil War, Reconstruction; emphasis on social history of colonial era and social, economic, political developments of Revolutionary, antebellum periods. GE: Historical perspectives (only for international students who hold a nonimmigrant student visa).

16A:62 American History 1877-Present 3 s.h.
Emphasis on social, political developments of Gilded Age, Progressive Era, Great Depression; the United States as a world power. GE: Historical perspectives (only for international students who hold a nonimmigrant student visa).

16A:65 Introduction to African American History 3 s.h.
Same as 129:65.

16A:105 Cultural History of Deaf People in America 3 s.h.
Deaf culture, deafness in American culture, evolution of American Sign Language; early 19th century to present.

16A:108 American Popular Culture – 19th Century 3 s.h.
Same as 91:292.

16A:110 Law in American History I 3 s.h.
Same as 91:293.

16A:111 Law in American History II 3 s.h.
American legal thought, experience from 1900 to present. Graduate standing or consent of instructor required. Same as 91:294.

16A:114 Introduction to Native American History 3 s.h.
Same as 91:295.

16A:118 Ultraconservative and Radical Theologies in American History 2-3 s.h.
Intellectual patterns of far right, left; single historical settings.

16A:120 Readings: Religion in American History 3 s.h.
Same as 91:296.

16A:121 Puritanism in Old and New England 2-3 s.h.
Same as 91:297.

16A:122 Varieties of American Religion 3 s.h.
Survey of distinctive groups: Mormons, Christian Scientists, Scientists, Black Muslims, Unification Church of Sun Myung Moon. Same as 91:298.

16A:123 Religious Thought in America 1607-1860 2-3 s.h.
Focus on leaders of American thought. Same as 91:299.

16A:124 Religious Thought in America 1860 to Present 2-3 s.h.
Same as 91:300.

16A:127 American Intellectual History 1767-1805 3 s.h.
History of ideas, information; intellectuals, institutions from science, explorations, art, politics, literature.

16A:128 American Intellectual History from 1870 3 s.h.
Continuation of 16A:127, beginning with end of Civil War.

16A:129 Cold War America 3 s.h.

16A:131 The Frontier in American History to 1840 3 s.h.

16A:132 The Frontier in American History 1840-Present 3 s.h.

16A:133 American West in Film 3 s.h.

16A:134 Great Plains 3 s.h.

16A:135 American West in the Twentieth Century 3 s.h.
Focus on growth, redistribution of political power, exploitation of and competition for natural resources, intermingling of diverse cultural groups.

16A:137 History of Iowa 3 s.h.
162215 Society and Gender in Europe 1200-1799 3 s.h. Social and gender ideologies as inscribed in patterns of authority (household, church, state); ranges of human endeavor (intellectual, psychological, biological); community organization (social, economic, legal, sexual); their influence on concept of community. GE: foreign civilization and culture. Same as 131:181.

162126 Early Modern France and the French Revolution 1500-1800 3 s.h. Political theories, legal acts, social structures, and public opinion in France (and the Caribbean colony of Saint Domingue) that informed the monarchical state and the new Republic organized during the French Revolution. GE: foreign civilization and culture.

162127 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. GE: foreign civilization and culture.

162131 England: Reformation to the Civil War 1509-1649 3 s.h.

162132 England Civil War to the American Revolution 1649-1776 3 s.h. Execution of King Charles I to American Revolution.

162134 Nineteenth-Century Europe 3 s.h. Social, political, economic, and cultural factors.

162135 Twentieth-Century Europe: The Nazi Era 3 s.h.

162136 Twentieth-Century Europe: The Cold War and After 3 s.h.

162137 Topics in the History of Public Health 3 s.h. Historical and contemporary problems of medicine, public health, health-care delivery in the Western world; European encounter with distinctive medical systems and health specialists in colonial Asia.

162139 Ancient and Medieval Science 3 s.h. Greeks' initiation of scientific inquiry; developments in astronomy, cosmology, optics, mathematics, physics, medicine, psychology in ancient and medieval societies of Middle East, Europe.

162140 The Scientific Revolution 3 s.h. Emergence of modern science to 18th-century; continuity and change in astronomy and cosmology, physics, biological sciences, chemistry revolution, science to magic, religion, philosophy; development of scientific communities, relation of science to society.

162141 Science in the Modern Age 3 s.h. Science, culture, and society from evolutionary biology to computer age; shift from classical physics to relativism, rise of psychology as science, genetic code and eugenics, professionalization of science.

162142 Science and Society 3 s.h. Science, religion, politics from Galileo to Newton; science and the Industrial Revolution; social Darwinism, eugenics movement; women and science; science and the military.

162144 Modern France 1870 to the Present 3 s.h.

162146 France from 1815 to the Present 3 s.h. GE: foreign civilization and culture.

162148 Society and Gender in Europe 1750 to the Present 3 s.h.

162151 Modern Britain 1700-1867 3 s.h. Industrial Revolution to mid-Victorian age.

162152 Modern Britain 1867-Present 3 s.h. Age of Gladstone and Disraeli to present.

162155 Germany 1786-1914: Nationhood, Society, and Culture 3 s.h.

162156 Germany since 1914 Weimar, Hitler, and After 3 s.h. Continuity, change in 20th-century German politics, society, culture; creation, collapse of Weimar Republic; Nazism and Third Reich; East and West Germany since 1945; unification and its discontents. GE: foreign civilization and culture.

162161 Politics and Culture in Twentieth-Century Europe 3 s.h.

162173 Main Currents in East European History 3 s.h.

162174 Medieval Russia 3 s.h. Political, social, economic, cultural, ideological developments in Old Rus' during Kievan, Suzdal-Vladimirian, Galician-Volynian periods and in city-states Novgorod, Pskov, ninth to 15th centuries.

162175 Muscovite Russia 1280-1598 3 s.h.

162176 Imperial Russia 1598-1801 3 s.h. Political, social, economic, cultural, ideological developments in Imperial Russia. GE: foreign civilization and culture.

162177 Imperial Russia 1801-1917 3 s.h.

162178 Soviet Union 1917-1953 3 s.h.

162179 Soviet Union 1953-1991 3 s.h.

162180 Twentieth-Century Europe: The Age of Gladstone and Disraeli to present. GE: foreign civilization and culture.

162182 Twentieth-Century Europe: The Age of Gladstone and Disraeli to present. GE: foreign civilization and culture.

162185 First World War 3-4 s.h. Social, economic, political, technological, military aspects of causes, conduct, consequences of war of 1914-18; fiction, contemporary documents, historical works, films.

For Graduates

162200 Statistical Methods in History 3 s.h. Quantitative approaches to historical analysis.

162201 First-Year Graduate Colloquium 2 s.h. Introduction to history graduate program.

162202 Readings in Urban Social History 3 s.h.

162203 Readings: Modern American Urban History 3 s.h.

162204 Readings: Emancipation and Reconstruction 3 s.h.

162205 Seminar: North American Slavery 3 s.h.

162206 Seminar: The Plantation South 3 s.h.

162207 Seminar in History, Economics, and Rhetoric 3 s.h.

162208 Readings: New Southern Histories 3 s.h.

162210 Readings: Medieval Women 3 s.h.

162211 Seminar: Medieval Intellectual History 3 s.h.

162212 Readings: Medieval Intellectual History 3 s.h.

162214 Readings: Medieval Universities 3 s.h.

162215 Seminar: Monastic History 3 s.h.

162216 Readings: Feudal Society 3 s.h.

162217 Seminar: Medieval Muslim and Jewish Philosophy 3 s.h.

162218 Medieval Latin Paleography 3 s.h.

162219 History Writing Theory and Interpretation 3 s.h.

162220 Seminar: Early Modern Europe 3 s.h.
16:221 Readings: Early Modern France
16:222 Seminar: Early Modern France
16:223 Readings: Early Modern European Women’s History
16:224 Seminar: Early Modern European Women’s History
16:226 Readings: Early Modern England 1450-1750
16:228 Seminar: Law and Society England 1500-1800
16:229 Readings in the History of Social Theory
16:230 Readings: Topics in Cultural History
16:231 Readings: United States in World Affairs
16:232 Readings: Modern French History
16:233 Seminar: United States in World Affairs
16:234 Readings: Modern European Agrarian History
16:235 Seminar: Modern Europe
16:236 Readings: Modern European History
16:237 Readings: Modern Middle East
16:238 Readings: Modern Germany
16:239 Seminar: Modern Britain
16:240 Readings: Modern Britain
16:242 Readings: British Imperialism
16:243 Seminar: Theory and Practice of Social Research in South Asia
16:245 Readings: African American Historiography
16:246 Seminar: African American History
16:247 Seminar: History of Science
16:248 Readings: History of Science
16:250 Readings: History of Medicine and Health
16:251 Seminar: History of Medicine and Health 3-4 s.h.
16:253 Seminar: Japanese History
16:255 Seminar: Russian or Soviet History
16:256 Readings: Russian History
16:257 Seminar: Soviet History
16:260 Readings: Class Formation in American History
16:261 Seminar: American Colonial History
16:262 Readings: American Colonial History
16:263 Seminar: Nineteenth-Century American Society
16:264 Readings: Culture and Conflict in Modern America
16:265 Seminar: American Social History
16:266 Readings: The Gilded Age and the Progressive Era
16:267 Seminar: Contemporary United States
16:268 Readings: The Contemporary United States
16:269 Readings of the American South: Gender and Race in American History Same as 45:269.
16:270 Readings in American Women’s History Same as 131:270.
16:271 Seminar: American Frontier
16:272 Readings: The American Frontier
16:273 Readings in American Social History
16:274 Readings in the History of American Society
16:277 Seminar: American Foreign Relations
16:278 Readings: American Foreign Relations
16:279 Seminar: Cultural and Intellectual History
16:281 Feminist Legal Harm Seminar: History and Theory
16:283 Feminist Theory Historians’ Perspectives Same as 131:283.
16:285 Readings: Women in Latin American History
16:286 Readings: African Slavery in the Atlantic World
16:288 Readings: Latin American History Same as 35:247.
16:289 Readings: Brazil
16:290 Seminar: Post-Comprehensive Historical fields, methodologies; emphasis on presentation, criticism of research materials. Open only to students who have passed the Ph.D. comprehensive examinations.
16:291 Seminar: Modern Chinese History Same as 39:254.
16:292 Readings in Chinese History Same as 39:258.
16:294 Readings: Japanese History Same as 39:257.
16:295 Readings in the History of India Socioeconomic history of modern India. Same as 39:295.
16:296 Individual Study Graduate
16:297 Thesis
16:298 Philosophy of History 3 s.h.
16:299 Toward an Historicism of Alterity 3 s.h. Theoretical perspectives on how alterity, or “otherness,” is assigned or derives historical value; theories of consciousness, semiotics, “othered” experiences—mainly race, sex.

HOSPITAL AND HEALTH ADMINISTRATION
See the College of Medicine section of the Catalog.

INTERDEPARTMENTAL STUDIES
Coordination Patricia Addis
Faculty advisory committee: Susan Birrell (Sport, Health, Leisure, and Physical Studies), Thomas Christensen (Music), J. Richard Simon (Psychology) Undergraduate degree: B.A. in Interdepartmental Studies

Degree Program
The Interdepartmental Studies Program (ISP) offers a Bachelor of Arts designed to provide alternatives in planning academic programs outside traditional undergraduate majors. Since this is a major that includes advanced-level course work from a variety of departments, students are responsible for planning their own area of intellectual focus with the help of the interdepartmental studies adviser.

Students in interdepartmental studies develop creative emphases that draw upon several departments and integrate varied approaches to a particular topic. A few examples of interdepartmental programs are aging studies, environmental studies, women’s studies, technical writing, family studies, and urban studies. Programs that are covered by existing departmental majors are not appropriate for the ISP major. In all cases, careful and timely planning is essential.

Plan of Study
Students are required to submit a plan of study before declaring an interdepartmental studies major. Students should consult promptly with the interdepartmental studies adviser to discuss an appropriate individualized program for their academic goals. The adviser can explain the plan of study review process. The earlier in a student’s academic career a plan of study is submitted, the more effective the student’s program will be.

Because the ISP major by definition allows for individualized academic planning, students are encouraged to apply for the program before or during the junior year.

GUIDELINES
Each plan of study submitted for approval must include:

- an essay no more than five pages long that includes a clear statement of the area of intellectual focus; the reasons for preferring the ISP to any departmental program; a concrete discussion of how the advanced courses relate to each other, to personal interests, and to the central focus of the plan of study; and a description of academic goals for the bachelor’s degree; and
- a list of advanced-level course work already completed and of advanced-level course work planned for all remaining semesters.

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 maybe returned to the student for revisions and resubmission at the next committee meeting. In some cases, the student may be referred to an appropriate departmental major.

Students are required to take the courses approved in the plan of study. A limited number of substitutions maybe 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, including the 36 semester hours of advanced course work specified in the plan of study, in order 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. Having a plan of study approved before embarking on the final two semesters ensures that students are truly planning ahead for a senior year. 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 Education Program**

Students must complete the College of Liberal Arts General Education Program requirements, including four semesters of college-level foreign language or the equivalent. (See the College of Liberal Arts introductory section for specific information.)

**Course Work for the Plan of Study**

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 General Education Program 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 ISP 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) are considered to be in one department, except 6E (economics), which is also considered a department in the College of Liberal Arts.

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.

**Advanced Courses Numbered below 100**

**American Studies**

- 45:72 Film and American Culture 3 s.h.
- 45:90 Seminar in American Cultural Studies 3 s.h.

**Art and Art History**

- 1H:20 and above 3 s.h.
- 1K:20 and above 3 s.h.
- 1K:49 Advanced Painting 3 s.h.
- 1M:22 Undergraduate Intaglio and Relief II 3 s.h.
- 1N:17 Undergraduate Sculpture Workshop 3 s.h.

**Classics**

- 14:11 Second-Year Greek I 3 s.h.
- 14:12 Second-Year Greek II 3 s.h.
- 20:16 Second-Year Latin I 3 s.h.
- 20:17 Second-Year Latin II 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 36F:50 and above 4 s.h.
- All courses numbered 36M:60 and above 4 s.h.

**Comparative Literature**

- 48:95 Undergraduate Seminar 3 s.h.

**Computer Science**

- 22C:9 Programming with Cobol 3 s.h.
- 22C:16 Introduction to Programming 4 s.h.
- 22C:17 Programming Techniques and Data Structures 4 s.h.

**English**

- All courses numbered 8:33 and above, except 8G courses 3 s.h.
- All 8W courses except 8W:1 3 s.h.
- All 8P courses above 8P:21 4 s.h.

**Geology**

- 12:41 Mineralogy 4 s.h.
- 12:52 Elementary Petrology 4 s.h.
- 12:92 Structural Geology 5 s.h.

**History**

- All courses above 16:71 4 s.h.

**Mathematics**

- 22M:27 Introduction to Linear Algebra 4 s.h.
- 22M:28 Calculus III 4 s.h.

**Physics and Astronomy**

- 29:29 Physics III 4 s.h.
- 29:30 Physics IV 4 s.h.

**Religion**

- All courses numbered above 32:20 3 s.h.

**Theatre Arts**

- 49:25 Acting I 3 s.h.
- 49:44 Theatre Crafts 3 s.h.
- 49:60 Play Script Analysis 3 s.h.
- 49:62 Basic Playwriting 3 s.h.

**ASIAN LANGUAGES AND LITERATURE**

- 39:10 Second-Year Chinese: First Semester 6 s.h.
- 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.
- 39:33 Second-Year Hindi: First Semester 4 s.h.
- 39:34 Second-Year Hindi: Second Semester 4 s.h.
- 39:10 Second-Year Japanese: First Semester 5 s.h.

**Classics**

- 14:11 Second-Year Greek I 3 s.h.
- 14:12 Second-Year Greek II 3 s.h.
- 20:16 Second-Year Latin I 3 s.h.
- 20:17 Second-Year Latin II 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 36F:50 and above 4 s.h.
- All courses numbered 36M:60 and above 4 s.h.

**Comparative Literature**

- 48:95 Undergraduate Seminar 3 s.h.

**Computer Science**

- 22C:9 Programming with Cobol 3 s.h.
- 22C:16 Introduction to Programming 4 s.h.
- 22C:17 Programming Techniques and Data Structures 4 s.h.

**English**

- All courses numbered 8:33 and above, except 8G courses 3 s.h.
- All 8W courses except 8W:1 3 s.h.
- All 8P courses above 8P:21 4 s.h.

**Geology**

- 12:41 Mineralogy 4 s.h.
- 12:52 Elementary Petrology 4 s.h.
- 12:92 Structural Geology 5 s.h.

**History**

- All courses above 16:71 4 s.h.

**Mathematics**

- 22M:27 Introduction to Linear Algebra 4 s.h.
- 22M:28 Calculus III 4 s.h.

**Physics and Astronomy**

- 29:29 Physics III 4 s.h.
- 29:30 Physics IV 4 s.h.

**Religion**

- All courses numbered above 32:20 3 s.h.

**Theatre Arts**

- 49:25 Acting I 3 s.h.
- 49:44 Theatre Crafts 3 s.h.
- 49:60 Play Script Analysis 3 s.h.
- 49:62 Basic Playwriting 3 s.h.
Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major.)

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

Before the fifth semester begins: an approved plan of study and at least one-half of the semester hours required for graduation.

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

Before the eighth semester begins: a total of at least nine courses in the plan of study.

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

Honors

ISP students qualify for membership in the University Honors Program by maintaining a cumulative grade-point average of at least 3.20. Graduating with honors usually includes the successful completion of the honors requirements in a particular department.

ISP students should initiate inquiries about graduating with honors by contacting the ISP coordinator. Students are encouraged to inquire early in their junior year to allow time for foundation course work. The director of the University Honors Program can offer suggestions for contacting a supervising faculty member or committee from one or several appropriate departments. Because the ISP exists outside traditional departmental structures, a special form for approval of an honors project must be filed with the ISP coordinator, the director of the honors program, and the student’s ISP advisor.

Double Major

Interdepartmental studies students 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.

Simultaneous Degrees

Interdepartmental studies students may earn a second degree (see “Simultaneous Degrees” in the College of Liberal Arts introductory section).

Certificates

Interdepartmental studies students may earn certificates in other programs, departments, or colleges. The same course may be used to meet the requirements of both the major in interdepartmental studies and the certificate program.

Minor

The Interdepartmental Studies Program does not offer a minor. Interdepartmental studies students may earn minors in other programs, departments, or colleges. The same course may not be used to meet the requirements of both the major in Interdepartmental Studies and the minor.

Career Considerations

Since the B.A. in interdepartmental studies affords opportunities outside the traditional degree pattern, students must create programs of study that meet their individual educational and career objectives. Those who plan to seek employment immediately following graduation should familiarize themselves with the educational background and qualifications required by employers and should include appropriate courses in their programs of study.

Students preparing for advanced study should become familiar with the admissions requirements of graduate or professional schools in which they are interested. The earlier students decide on pursuing graduate or professional study, the easier it is for them to complete any necessary prerequisites.

Courses

145:000 Cooperative Education Internship 0 s.h.

IOWA LAKESIDE LABORATORY

Director: Arnold van der Valk
University of Iowa Coordinator: Richard G. Baker
Iowa State University participating faculty: Julia M. Badenhoop (Landscape Architecture), George G. Brown (Zoology and Genetics), William G. Crampton (Botany), Diane M. Debinski (Animal Ecology), Charles D. Drewes (Zoology and Genetics), Donald R. Farrar (Botany), John M. Pleasants (Zoology and Genetics), Thomas R. Rosburg (Botany), Joseph A. Tiffany (Anthropology), Lois H. Tiffany (Botany), University of Iowa participating faculty: Richard G. Baker (Geology), Robert W. Cruden (Biological Sciences), John F. Doerrshuk (State Archaeologist’s Office), Lon D. Drake (Geology), Stephen D. Hendrix (Biological Sciences), University of Northern Iowa participating faculty: Michael J. Shott (Sociology and Anthropology), Daryl D. Smith (Biology)

The Iowa Lakeside Laboratory is a biological field station comprising approximately 140 acres of grassland and galaxy 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, a University of Iowa botanist and geologist during the late 19th and early 20th centuries. The lab site was the first area set aside for conservation efforts. The lab is well known for its fluid dynamics research.

Iowa Lakeside Laboratory is run by Iowa State University, The University of Iowa, and the University of Northern Iowa through the State Board of Regents.

Each summer the laboratory offers small full-immersion field orientation courses in the natural sciences (archaeology, ecology, evolution, geology, taxonomy) at the sophomore, junior, and senior/graduate student levels. For students working on advanced degrees, the laboratory provides excellent opportunities to develop thesis projects. Students normally spend at least part of each day doing fieldwork, either as part of their class work or for individual or group projects.

Teaching and research facilities include seven laboratories, a library, and a lecture hall. Living accommodations include cottages, dormitories, and a large mess hall.

Financial Aid

Iowa Lakeside Laboratory Scholarships are available to both undergraduates and graduate students. All scholarships cover room and board. Work-study opportunities also are available. For information about applying for Iowa Lakeside Laboratory Scholarships and work-study, see the Iowa Lakeside Laboratory Bulletin, available from the Departments of Biological Sciences and Geology at The University of Iowa and on Iowa State University’s World Wide Web site. For information about other scholarships, work-study, and loan programs, contact the University’s Office of Student 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. Application deadline is April 1.

Registration

To attend Iowa Lakeside Laboratory, students must be enrolled in one of the State Board of Regents universities. Current or former students of Iowa State University, The University of Iowa, or the University of Northern Iowa may enroll in those institutions using the registration form included in the Iowa Lakeside Laboratory Bulletin. Students from other institutions must apply for admission to one of the Regents universities; each institution has a provisional admission policy for students who wish to register only for summer work. The admission and registration forms can be submitted at the same time. The Iowa Lakeside Laboratory Bulletin is available from the Departments of Biological Sciences and Geology at The University of Iowa.

Early registration is advisable. Students are urged to submit applications before May 1.

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.

L5 Flora of the Iowa Lakes Region 2 s.h.
L31 Ecology 3 s.h.
Principles of ecology at the population, community, and ecosystem levels; factors that control distributions, interactions, and roles of plants and animals in native ecosystems examined through field studies of local lakes, wetlands, prairies; introductory course.
L:35 Environmental Geology of Northwest Iowa 3 s.h.
Basic processes that have shaped the earth’s surface, with emphasis on glacial weathering, erosion, riverine processes; impact of land use and other human activities on contemporary landscapes; emphasis on surficial geology of northwest Iowa.

L:40 Archeology 3 s.h.
Cultural and environmental evidence in archeology—its nature and use in modeling past human behavior and land use, with emphasis on Iowa prehistory; basic reconnaissance surveying, excavation techniques.

L:50 Undergraduate Internship 1-5 s.h.
Experience as an interpreter, ranger, or technician through placement with county conservation boards, camps, parks, and so forth. Sophomore standing required.

L:64 Biology of Aquatic Plants 3 s.h.
Taxonomy and ecology of aquatic plants in lakes, wetlands, rivers; field-oriented introductory course with individual or group projects.

L:100 Techniques for Biology Teaching 1-2 s.h.
Development and implementation of laboratory exercises appropriate for high school biology courses; animal, plant biology; aquatic, prairie, wetland ecology; fungi and lichens; limnology; exercises built around common Iowa organisms, ecosystems; field trips.

L:101 Iowa Natural History 4 s.h.
Biological diversity and its causes examined through lectures and field trips to native lake, marsh, forest, and prairie habitats; topics include measuring the environment, sampling and identifying organisms, experimenting with the ecosystem, understanding species interactions, and appreciating influences of past and present climates and geological events on the region’s natural ecosystems. Prerequisite: one course in the biological sciences.

L:102 Plant-Animal Interactions 3 s.h.
Ecology and co-evolution of plants and animals, with emphasis on dispersal, pollination, plant-herbivore interactions; field and laboratory work. Prerequisite: one course in the biological sciences.

L:103 Aquatic Biology 4 s.h.
Aquatic ecosystems; emphasis on basic ecological principles; ecological theories tested in the field; identification of common plants and animals. Prerequisites: courses in ecology, chemistry, and physics.

L:105 Plant Taxonomy 4 s.h.
Principles and evolution of vascular plants; taxonomic tools and collection techniques; use of keys; field and laboratory studies emphasizing identification of local flowering plants, recognition of major plant families.

L:107 Field Parapsychology 3 s.h.
Ecology and life history of parasites, protozoans, helminths, arthropods; field and laboratory investigations including preparation, identification, morphology of representative types and stages; general and comparative concepts of parasitology.

L:109 Freshwater Algae 3 s.h.
Structure and taxonomy based on material collected in the field; emphasis on genus-level identifications made by students; habitats visited include lakes, fens, streams, rivers; algal ecology.

L:113 Undergraduate Independent Study 1-4 s.h.
Junior or senior standing required.

L:115 Field Mycology 3 s.h.
Identification and classification of the common fungi; techniques for identification, preservation, and culture practiced with members of the various fungal groups.

L:117 Ecology and Systematic of Diatoms 4 s.h.
Field and laboratory study of freshwater diatoms; techniques in collection, preparation, and identification of diatoms; environmental factors affecting growth, distribution, taxonomy; project design and execution, including construction of reference and voucher collections, data organization and analysis. Microscopes are available, but students with high-quality ul immersion lens binocular microscopes are encouraged to bring them.

L:119 Evolution 3 s.h.
Mechanisms and patterns in microevolution, macroevolution; field exercises emphasizing natural selection, adaptation, genetic variation, and population genetics of local plant, animal populations.

L:120 Developmental Biology of Freshwater Invertebrates 3 s.h.
Spawning, cleavage, cell lineages, torsions, appendage specialization, hormonal control, regeneration, colonies, grafting; varied habitats allow comparative approach with many species; field collections, culturing, analytical and experimental procedures.

L:121 Plant Ecology 3 s.h.
Principles of plant population, community, and ecosystem ecology examined through study of native vegetation in local prairies, wetlands, forests.

L:122 Prairie Ecology 4 s.h.
Basic patterns, underlying physical and biotic causes of regional and local distributions of North American prairie plants and animals; field and laboratory analyses and projects. Prerequisite: familiarity with basic principles of biological sciences, ecology.

L:124 Wetland Ecology 3 s.h.
Ecology, classification, creation, restoration, and management of wetlands; field studies on composition, structure, and function of local natural wetlands, restored prairie pothole wetlands. Prerequisite: L:31.

L:126 Ornithology 3 s.h.
Birds; field studies of birds, with emphasis on field studies of local avifauna; techniques of population analysis and methodology for population studies. Recommended: concurrent registration in L:156.

L:127 Field Entomology 3 s.h.
Insects - their diversity and life history, with emphasis on ecology, behavior, fieldwork laboratory. Prerequisite: some biological background.

L:128 Fish Ecology 3 s.h.
Basic principles of fish interaction with biotic and abiotic environments; field methods, taxonomy, and biology of fish with emphasis on fauna of northeastern Iowa.

L:129 Vertebrate Ecology and Evolution 4 s.h.
Representative vertebrates of northwestern Iowa; fieldwork and laboratory emphasis on ecological histories through concepts of functional morphology, behavioral ecology, evolutionary biology.

L:130 Natural History Workshop 1 s.h.
A specific aspect of the upper Midwest’s natural history, or techniques for studying natural history; amphibians and reptiles, aquatic plants and birds and birding, common algal, common insects, fish biology, life in rivers, life in lakes, mosse and liverworts, mushrooms and other fungi, nature photography, prairies and prairie restoration, trees and forests; five day-long non-technical introductions.

L:145 Landscape Approaches to Environmental Planning 3 s.h.
Translation of landscape ecology theory and practice into action plans for local communities; methods for tailoring models to local needs examined through case studies, readings from scientific and popular literature, lectures, workshops; local field trips.

L:156 Advanced Field Entomology 2 s.h.
Birds of the upper Midwest; extended field trip to Minnesota, Wisconsin; individual or group project. Corequisite: L:126.

L:160 Restoration Ecology 3 s.h.
Ecological principles for restoration of native ecosystems; establishment (site preparation, seed mix selection, planting techniques) and management (fire, mowing, weed control) of native vegetation; emphasis on restoration of prairie, wetland vegetation. Prerequisite: A course in ecology.

L:163 Conservation Biology 3 s.h.
Demographic and genetic perspectives on factors influencing viability of plant and animal populations, examined at population and community levels; assessment of biodiversity; design, management of preserves. Prerequisite: L:31.

L:199 Undergraduate Research 1-4 s.h.
Graduate standing required.

L:213 Graduate Independent Study 1-4 s.h.
Graduate standing required.

L:240 Natural History Workshop 1 s.h.
An aspect of the upper Midwest’s natural history, or techniques for studying natural history. Graduate standing required.

L:250 Graduate Internship 1-5 s.h.
Experience as interpreters, rangers, technicians, and teachers through placement with county conservation boards, camps, parks, schools, et cetera. Graduate standing required.

L:299 Research 1-4 s.h.
Experience as an interpreter, ranger, technician, or teacher through placement with county conservation boards, camps, parks, schools, and so forth. Graduate standing required.

ITALIAN
See “French and Italian.”

JOURNALISM AND MASS COMMUNICATION

Director: John Soloski
Professors: Kay Amert, Joseph Ascroft, Carolyn Stewart Dyer, Hanno Hardt, Donald Smith, Jeffery Smith, John Soloski, Kenneth Starek, Albert Talbott
Associate professors: Daniel A. Berkowitz, Stephen Bloom, John Erickson, John Kimmich Javier, Judy Poloumbam
Associate professor emeritus: William Zima
Assistant professors: John Bennett, Venise Berry, Sue LaFeey
Adjunct professors: Douglas Allaire, Mary Arnold, Gerald Carroll, Kate Corcoran, 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, television, and electronic media and in a variety of areas such as public relations, publication design, photojournalism, 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 a 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, 19:90 and 19:91 (see “Premajor Foundation”), as well as all required rhetorical courses. Students may apply for admission to major status during the semester in which they will complete these requirements and enough overall course work to total 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 overall course work to total 30 semester hours.

Journalism and Mass Communication ● Liberal Arts 169

Adjunct professors: Douglas Allaire, Mary Arnold, Gerald Carroll, Kate Corcoran, 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, television, and electronic media and in a variety of areas such as public relations, publication design, photojournalism, 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 a 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, 19:90 and 19:91 (see “Premajor Foundation”), as well as all required rhetorical courses. Students may apply for admission to major status during the semester in which they will complete these requirements and enough overall course work to total 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 overall course work to total 30 semester hours.
A few outstanding students are invited to be majors upon enrollment in the University. Applications and deadline information are available from the School of Journalism and Mass Communication office.

The primary criterion for admission to major status is overall academic performance. Other factors considered in the admission process include 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. The school reviews applications with the goal of admitting the most qualified students to the program.

Curriculum

Majors must complete a minimum of 30 and a maximum of 40 semester hours of journalism courses with a grade of C- or higher in each required or elective course necessary to satisfy the major requirement. Majors also must complete second major or 24 semester hours in a second area of concentration.

Because of the flexibility inherent in the undergraduate program, each new major should develop an individual plan of study in consultation with his or her faculty adviser.

Required Courses

All majors must complete the following course work (minimum of 30, maximum of 40 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.
One media workshop (19: 130-19: 139) 4 s.h.

Conceptual Courses

19:149 Legal and Ethical Issues in Communication 3 s.h.
A conceptual course (19:150-19:169) 3 s.h.

Electives

Chosen from undergraduate courses 6 s.h.

Additional Electives

Additional courses for the maximum 40 semester hours (optional)

Second Area of Concentration

In addition to completing the College of Liberal Arts General Education Program 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 but considered to be advanced. For a list of advanced courses numbered below 100, see the Interdepartmental Studies Program section of the Catalog. Courses 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 fulfill the school’s second area of concentration requirement in one of two ways.

Option 1: complete a full B.A. major in another department.

Option 2: 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 fulfill the school’s second area of concentration requirement in one of two ways.

Option 1: complete a B.S. major in a natural, mathematical, or social science.

Option 2: complete a 24-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 complete 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.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are required to complete the major; they may be offered by departments other than the major department.)

Note: With the exception of a few students admitted as freshmen, students are admitted to the School of Journalism on a competitive, selective basis, and the four-year graduation plan agreement does not hold for students who are not admitted. Also, each student must complete either a second major or a second area of concentration consisting of at least eight courses. These checkpoints show only the minimum requirements of the second area, not the second major.

Before the third semester begins: either 19:90 or 19:91 and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: admission to the major, an additional course in the major, at least one second-area course, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two additional courses in the major, three additional second-area courses, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two additional courses in the major and two second-area courses

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

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. Honors students must maintain a 3.20 grade-point average to graduate with an honors degree. Information about the honors degree in journalism is available in the school’s main office.

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 (those numbered 19:100 or higher). 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 pass/nonpass.

Regarded as an introduction to the field, **Journalism or mass communication** should be which they will 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, transfer students are premajors 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 (6-8 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 coursework 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 designed for individuals who already have acquired basic journalistic skills and who seek to enhance their careers through specialized knowledge in a selected interest area. Each student creates an individualized focus area through courses chosen from inside and outside the school. Some examples include law, politics, business, medicine, science, the environment, urban planning, the arts, and issues of race, gender, and culture.

Building on conceptual and advanced skills coursework, students complete their programs with a master’s project of a professional nature, such as in-depth reporting, design, documentary media, or applied research on a mass media topic.

Students admitted to the program ordinarily have a background in some area of mass communication. This background may be obtained through professional experience, typically a minimum of one year, or academic coursework an A limited number of exceptional applicants without these qualifications may be accepted on the condition that they complete specified preparatory coursework. All applicants must provide a general description of the focus area they intend to develop.

The following courses are required.

19:225 Contemporary Problems in Journalism 3 s.h.

Two of these:

19:226 Master’s Advanced Reporting
and Writing 3 s.h.
19:227 Master’s Journalism Workshop 3 s.h.
19:228 Master’s Journalism Laboratory 3 s.h.

Coursework in the school 6 s.h.

**Focus area outside journalism and mass communication** 9 s.h.

**Elective (from inside or outside of the school)** 3 s.h.

*Students who have not taken a media law course must enroll in 19:149 Legal and Ethical Issues in Communication as one of their conceptual courses. With adviser approval, a graduate-level law course may be used to meet this requirement.

**The focus area must be identified as part of the admission process. Specific graduate-level courses depend on availability and student interests, and are chosen in consultation with an academic adviser. Focus area courses may be taken on a satisfactory/unsatisfactory basis.

**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. Moeller Seminar Room, the Merritt 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 journalism.
The center encourages and facilitates student and faculty research in the field of communication. Among its publications are the Journal of Communication Inquiry, edited by graduate students, and The Iowa Guide: Scholarly Journals in Mass 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 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 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 Center for 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. Moeller Lecture 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 are 100-level or higher (except 19:157 Third World Development Support) require junior standing, major status, or consent of instructor.

19:000 Journalism and Mass Communication Cooperative Education internship 0 s.h.
Internships administered by the Cooperative Education Program; filled on competitive basis. Consent of journalism graduate adviser required for graduate students. Prerequisite: 12 semester hours of journalism and mass communication courses and any specifically required courses.

19:35 Introduction to Media Production 3 s.h.
Project-oriented, with production experience; emphasis on formative principles and effectiveness of communication; equipment and training provided; for students with no previous experience. Same as 36D:35.

1990 Social Scientific Foundations of Communication 3 s.h.
Processes, institutions, organizations, occupations of mass communication, from a variety of social science perspectives. GE: social sciences.

19:91 Cultural and Historical Foundations of Communication 3 s.h.
Historical development of mass communication in the United States; cultural, historical content. GE: historical perspectives.

19:95 Media and Consumers 3 s.h.
Communications media in historical, political, economic contexts and their relationships with audiences; criteria for evaluating media content in relation to nature and consequences of news, entertainment, advertising.

19:101 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. Offered fall semesters. Same as 75:113.

19:102 Workshop for Secondary School Journalism/Communication Teachers 1-2 s.h.
Workshops on journalism/mass media curriculum, audio/video production, photojournalism, publication design, journalistic writing techniques, advising student publications. Same as 76:136.

19:115 Journalism Reporting and Writing 4 s.h.
Fundamentals of journalistic reporting and writing sophisticated news writing, basic to complex; emphasis on reporting techniques, enterprise, heat coverage.

19:120 Specialized Reporting and Writing 4 s.h.
Representative news media practices: legal, 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 reporter as researcher, organizer, writer of complex stories in a variety of contexts. May be repeated. Prerequisite: 19:115 or consent of instructor.

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 writing, and delivering broadcast news. Prerequisite: 19:115 or consent of instructor.

19:124 Persuasive Writing 4 s.h.
Principles and practices of persuasive writing in editorials, op-ed pieces, 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 periodical markets, 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.
Problems of design, production layout: computer techniques, functional and aesthetic considerations; creative projects. Prerequisite: 19:115 or consent of instructor.

19:132 Photожournalism 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; creative projects. 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: 19:115 or consent of instructor.

19:135 Public Relations Practice Workshop 4 s.h.
Development and presentation of public relations campaigns for client organizations; communication theory and research techniques applied to analyzing and solving public relations problems through objectives-based strategic planning. 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, headlines, illustration, layout; pencil 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; computerized typesetting and layout technology; creative projects. Prerequisite: 19:115 or consent of instructor.

19:138 Advanced Media Workshop 4 s.h.
Journalism and mass communication skills; may include photojournalism, documentary photography, 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.

19:150 Visual Communication 3 s.h.
History of 20th-century visual communication from a cultural perspective; development of visual form, composition, spatial representation, color, in-depth study of selected artists, designers, 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.

19:153 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.

19:155 Media and Communication 3 s.h.
Relationship between popular media fare and cultural realities; media formulas and communication practices in American culture.

19:156 Comparative Communication Systems 3 s.h.
Liberal Arts ● Journalism and Mass Communication
19:157 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. GE: foreign civilization and culture. Same as 44:157.

19:158 News-Editorial Problems 3 s.h.
Current issues in journalism; emphasis on press performance and practical problems journalists confront in their work.

19:159 Electoral Politics and the Mass Media 3 s.h.
Relationships between politics and mass media; critical evaluation of nature, role, function of media political coverage.

19:161 Law and the American Media 3 s.h.
First Amendment theory, current topics in communication law. Consent of instructor required.

19:162 Communication and Public Relations 3 s.h.
Public relations problems in organizational systems; emphasis on communication theory and research in development of problem-solving perspective.

19:163 History of Books and Printing 3 s.h.
Invention and spread of printing technology; social and cultural impact in the West; books and other printed mass communications media.

19:164 Images and Society 3 s.h.
Treatment of images of photography, film, and television as technologies of reproduction in contemporary American or Western culture.

19:165 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. GE: cultural diversity.

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 who produce 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. Maybe 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; language, concepts, procedures, application of behavioral research methods; field and experimental approaches.

19:202 History of Mass Communication in the United States 3 s.h.
Development in context of U.S. history.

19:203 Popular Culture and Mass Communication 3 s.h.
Relationships between popular media fare and cultural realities; media formulas, 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.
Role in society; audience characteristics of mass media, effects of mass media on audiences; relationship to public opinion, crime and violence, political affairs, racism, sexism.

19:206 Comparative Communication Systems 3 s.h.
Culture and communication as central to examining media in different social and political settings; 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 3 s.h.
Current issues in journalism; emphasis on press performance and practical problems journalists confront in their work.

19:209 Electoral Politics and the Mass Media 3 s.h.
Relationship between political campaigns and mass media; critical evaluation of nature, role, function of media political coverage.

19:210 Current Issues in Mass Communication 1.2 s.h.

19:211 Law and the American Media 3 s.h.
First Amendment theory, current topics in communication law.

19:212 Communication and Public Relations 3 s.h.
Public relations problems in organizational systems; emphasis on communication theory and research in development of problem-solving perspective.

19:213 History of Books and Printing 3 s.h.
Invention and spread of printing technology; social and cultural impact in the West; books and other printed mass communications media.

19:214 Images and Society 3 s.h.
Treatment and uses of photography, film, and television as technologies of reproduction in contemporary American or Western culture.

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 communications work force; women who produce alternative media.

19:219 Topics in Mass Communication 3 s.h.
May be repeated.

19:220 Master’s Seminar 0 s.h.
Theoretical or methodological problems in mass communication.

19:221 Approaches to the Study of Communication Issues and Concepts 3 s.h.
Major communication and mass communication concepts; their use and development.

19:222 Literature of Communication 3 s.h.
Foundations of communication and mass communication theory and research.

19:225 Contemporary Problems in Journalism 3 s.h.
Current journalism issues; emphasis on press performance and problems confronting journalists; appropriate critical, professional, scholarly literature.

19:226 Master’s Advanced Reporting and Writing 3 s.h.
Reporting and writing stories developed from focus area; development of a file of story ideas, sources, and potential publishing outlets and a resource file of coverage and criticism. May be repeated.

19:227 Master’s Journalism Workshop 3 s.h.
Advanced work in the student’s visual or broadcast area of interest. May be repeated. Consent of instructor required.

19:228 Master’s Journalism Laboratory 3 s.h.
Advanced writing; topics from student’s focus area, approaches, or techniques of inquiry. May be repeated. Consent of instructor required.

19:230 Specialized Reporting and Writing 3 s.h.
Representative topics: public affairs, law, science, business, medicine, intercultural affairs, education, lifestyles, computer-assisted reporting. May be repeated.

19:231 Depth Reporting and Writing 3 s.h.
Enterprise reporting: emphasis on reporter as researcher, organizer, writer of complex stories in a variety of contexts. May be repeated.

19:232 Magazine Reporting and Writing 3 s.h.
Finding ideas, researching, interviewing; problems of organization and style; identification of audiences, markets.

19:233 Broadcast Journalism Reporting and Writing 3 s.h.
Principles; gathering, writing, editing, reporting the news; techniques and concepts as a foundation for understanding, successfully writing, and delivering broadcast news.

19:234 Persuasive Writing 3 s.h.
Principles, practices of persuasive writing in editorials, op-ed pieces, magazine essays, reviews, public relations.

19:235 Freelance Reporting and Writing 3 s.h.
Approaches to writing and marketing articles to magazines, newspapers, other publications; developing ideas, researching periodical markets, writing queries, writing and rewriting articles for publication.

19:240 Media Workshop 3 s.h.
Analysis and solution of problems with communication strategies and/or media products; public relations, newsletter production, media research. May be repeated.

19:241 Publication Design Workshop 3 s.h.
Problems of design, production, layout; computer techniques, functional and aesthetic considerations; creative projects.

19:242 Photographic Journalism Workshop 3 s.h.
Techniques; basic craft, location shooting, editing photographs; group critiques of assignments.

19:243 Typography Workshop 3 s.h.
Typography and typographic design: letterform terminology, differentiation, use in design; creative projects.

19:244 Broadcast Journalism Workshop 3 s.h.
Electronic news gathering (ENG); conceptualization, shooting, editing basic news packages.

19:245 Public Relations Practice Workshop 3 s.h.
Development and presentation of public relations campaigns for client organizations; communication theory and research techniques applied to analyzing and solving public relations problems through objectives-based strategic planning.

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.

19:247 Book Design Workshop 3 s.h.
Specialized practices and problems of book design; computerized typesetting and layout technology; creative projects.

19:248 Advanced Media Workshop 3 s.h.
Journalism and mass communication skills; may include photojournalism, documentary photography, editing, broadcasting.

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.

19:251 History of Typography 3 s.h.
Origin and development of typographic letterforms; cultural and social context; technology, periodization, literature, archival research.

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; newspapers, radio, television, cable television, telecommunications.

19:254 Communication and Change 3 s.h.
Theory, research, methodological problems of studying change; diffusion of innovations, media and change; reform organizations, revolutionary and evolutionary organizations.

19:255 Problems in International Communication 3 s.h.
Representative topics: communication systems in national development; international and cross-cultural communication structure and theory; images, values, mass persuasion; laws, agreements; information channels, content, flow, effects; censorship, language, literacy.
LATIN AMERICAN STUDIES PROGRAM

Chair: Kathleen Newman
Professors: Enrique Carrasco (Law), Thomas Charlton (Anthropology), Michael Chelnik (Anthropology), Nora England (Anthropology), Roslyn Frank (Spanish and Portuguese), Oscar Hahn (Spanish and Portuguese), Charles Hale (History)

Associate Professors: Florence Babb (Anthropology/Women’s Studies), Ralph Cintron (Rhetoric), Maria Duarte (Spanish and Portuguese), Nere Gonzalez (Spanish and Portuguese), Laura Graham (Anthropology), Adriana Martinez Roselli (Spanish and Portuguese), Douglas Midgett (Anthropology), Mario Santizo (Spanish and Portuguese), Diana Vázquez (Spanish and Portuguese), Irene Werthman (Spanish and Portuguese)

Assistant professors: Kathleen Higgins (History), M. Mercedes Velez-Munoz (Spanish and Portuguese), T.M. Scroog (Anthropology)

Undergraduate degrees: certificate, minor in Latin American Studies

The Latin American Studies Program 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 Latinos in the United States. 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 certificate or minor in Latin American studies. All students plan their programs in close cooperation with Latin American studies advisers.

The Latin American Studies Program 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 24 semester hours of credit with a grade-point average of at least 2.00 in courses chosen from the list of LASP-approved LASP courses. (See “Approved LASP Courses” under “Course Work”). These courses must include the following:

130:20 Contemporary Latin American News Colloquium 2 s.h.

Minor

To earn a minor in Latin American studies, students complete 15 semester hours in courses selected from the list of LASP-approved courses, with a grade-point average of at least 2.00. To preserve the interdisciplinary character of the Latin American studies minor, students majoring in anthropology, history, political science, or Spanish and Portuguese may not count more than 6 semester hours from courses in their major department toward the minor. At least 12 of the 15 semester hours must be taken in advanced courses (100-level or above) at The University of Iowa. Students are strongly encouraged to take either or both of the following:

130:20 Contemporary Latin American News Colloquium 2 s.h.

Study Abroad

It is highly recommended, though not required, that students have an in-depth Latin American cultural experience, usually through a study abroad program, before completing their undergraduate requirements.

In cooperation with the Study Abroad Center of the University’s Office of International Education and Services (OIES), LASP faculty facilitate student participation in programs in a dozen different Latin American countries. Such programs range from intensive language study to group programs with a special focus. University of Iowa-sponsored study abroad programs include a summer program with Universidad de Guanajuato in Mexico and a health and nutrition program in Pontificia Universidad Católica Madre y Maestra in the Dominican Republic.

Through the International Student Exchange Program (ISEP), University of Iowa students may enroll in member institutions in Argentina, Brazil, Colombia, Costa Rica, the Dominican Republic, Honduras, Mexico, and Uruguay. Students also may study in Chile through the University Study Abroad Consortium.
Courses taken through study abroad programs may be counted toward requirements for the certificate and the minor, subject to prior approval by 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
130:20 Contemporary Latin American News Colloquium (required for course, recommended for minors) 2 s.h.
130:105 Independent Study  arr.
130:115 Topics in Latin American Studies  arr.
130:176 Latin American Studies Seminar (required for course students, recommended for minors) 3 s.h.

Approved LASP Courses

Anthropology
113:108 Literature and Anthropology (area-related) 3 s.h.
113:114 Amazonian 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.
113:151 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.
113:170 Archaeology of Aztec State Development  3 s.h.
113:191 Structure of Mayan Languages  3 s.h.

Art
IH: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.
38:114 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.
35:138 Survey of Twentieth-Century Puerto Rican Literature  3 s.h.
35:139 Spanish-American Poetry II  3 s.h.
35:145 Latin America Cinema  3 s.h.
35:162 Latin American Women Writers  3 s.h.
35:169 Spanish-American Literature of Fantasy  3 s.h.
35:175 Cultural Identity in Caribbean Literature  3 s.h.
35:178 Culture and Language in the Andes  3 s.h.
35:185 Colonial Spanish American Literature  3 s.h.
35:187 Spanish-American Dialectology  3 s.h.

Other
7E:195 Multicultural/Bilingual Concepts and Educational Systems  3 s.h.
35:20 Contemporary Latin American Narrative (may not be used toward certificate)  3 s.h.
36C:93 Intercultural Communication (final paper must focus on Latin America)  3 s.h.
36F:111 Cinema and Culture (when topic is Latin American)  3 s.h.
47:100 Problems in Global Studies (final paper must focus on Latin America)  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 advisers, 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 Curanderos, and the Venezuelan Association. Students who would like to live in a multilingual 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, roundtable discussions, and lectures. Scholars, activists, musicians, professionals and others visit the campus to participate in a variety of activities. Recent events have included a colloquium and discussion of identities and racism in Guatemala, by Mayan intellectual Demetrio Cojti, U.S. anthropologist Carol Smith, and Guatemala sociologist Marta Elena Casais Arzu; and lectures by anthropologist Jane Hill, historian Mauricio Tenorio Trillo, and Mexican cultural critic Carlos Monsivais.

Courses
130:20 Contemporary Latin American News Colloquium  2 s.h.
130:105 Independent Study  arr.
130:115 Topics in Latin American Studies  arr.
130:176 Latin American Studies Seminar  3 s.h.

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 careers, 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 programs.

Admission

Students who want 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 62 semester hours must be earned at four-year colleges; 45 of 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 Graduate Programs, courses numbered below 100 but taught at an advanced level maybe 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 the General Education Program (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 General Education Program 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.600 Cooperative Education Internship 0 s.h.

LIBRARY AND INFORMATION SCIENCE

Director: Padmini Srinivasan

Professors emerite: Esther Bierbaum, Velva Jeanne Osborn

Associate professors: Sharon L. (Shay) Baker, Carl Oergen, James Rice, Padmini Srinivasan

Associate professor emerita: Louane L. Newsome

Assistant professor: Jean Donham van Deusen

Adjunct assistant professor: William Welburn

Lecturer: Ethel Bloesch

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 profit and nonprofit organizations, and 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 issues such as information and communication technology, public and private information policy, managerial policy, and regional, national, and international economics.

The School of Library and Information Science prepares professionals to meet these diverse challenges. It offers a graduate-level program of preparation for careers in all types of libraries and information centers, providing students with a strong, well-rounded education in an environment that supports individuals from all segments of a multicultural, multilingual, and multinational society. Its curriculum reflects the profession’s immediate and long-range needs and prepares students to be leaders in a changing field.

By promoting excellence in research, the school contributes to the base of theoretical and practical knowledge in library and information science and helps develop an understanding of how to meet the varied and changing information needs of individuals and society. It also provides public service through continuing education programs, consulting services for library and information centers, and participation in professional organizations.

The school strongly encourages its students, faculty members, and alumni to shape the future of the profession by filing 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 nonelectronic 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 the design, evaluation, implementation, and management of hardware, software, telecommunication networks, and information systems;
- the discipline’s research base, from historical highlights to current research, and research that reflects the synergism between library and information science and other disciplines, such as computer science, linguistics, psychology, and communication;
- 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 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):
21:151 Reference 3 s.h.
21:152 Organization of Information Resources I 3 s.h.
21:153 Foundations and Collection Development 3 s.h.
21:201 Management of Libraries and Information Centers 3 s.h.
21:246 Information Science and Technology 3 s.h.
21:249 Research Methods 3 s.h.

Electives
Total of 18 semester hours
For suggested electives, see “Academic Librarianship,” “Special Librarianship,” “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 specific 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 specific 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 also may be organized on a regional or statewide cooperative basis. The variety of uses, services, materials, and organizational structures of public libraries makes this a challenging area of librarianship.

Public librarians need to develop skills in analyzing the communities they serve, designing comprehensive marketing plans to meet their needs, implementing the plans cost-effectively, and evaluating the success of their efforts.

PLAN OF STUDY
Required core courses 18 s.h.
Electives (total of 18 semester hours); the following are suggested.
21:126 Literature and Storytelling for Children 3 s.h.
21:222 Multimedia and Interactive Technologies 3 s.h.
21:231 The Public Library 3 s.h.
21:243 Library Materials for Adults 3 s.h.
21:244 Library Materials for Children 3 s.h.
21:245 Library Materials for Adolescents 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:248 Library Automation 3 s.h.
21:251 Advanced Reference 3 s.h.
21:282 Practicum in Libraries and Information Centers 2-3 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 often are required. Since librarians in this setting usually are considered academic faculty members, possession of a second master’s or other advanced degree is helpful in obtaining appointment, tenure, or promotion.

PLAN OF STUDY
Required core courses 18 s.h.
Electives (total of 18 semester hours); the following are suggested.
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 Organization of Information Resources II 3 s.h.
21:253 Technical and Serial Services Management 3 s.h.
21:255 Government Information Resources 3 s.h.
21:282 Practicum in Libraries and Information Centers 2-3 s.h.

Special Librarianship
Special librarianship includes careers in libraries and information centers serving both profit and nonprofit 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 special librarians.

PLAN OF STUDY
Required core courses 18 s.h.
Electives (total of 18 semester hours); the following are suggested.
21:230 Special Libraries and Information Centers 3 s.h.
21:240 Bibliography 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:250 Systems Analysis and Database Design 3 s.h.
21:251 Advanced Reference 3 s.h.
21:252 Organization of Information Resources II 3 s.h.
21:255 Government Information Resources 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 and Information Centers 2-3 s.h.

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 and are employing information management personnel. An information science specialization can lead to nontraditional careers.

PLAN OF STUDY
Required core courses 18 s.h.
Electives (18 semester hours), as follows.
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 (list available upon request) 6-9 s.h.
The balance selected from these:
21:230 Special Libraries and Information Centers 3 s.h.
21:240 Bibliography 3 s.h.
21:245 Information Science and Technology 3 s.h.
21:246 Information Science and Technology 3 s.h.
7P:220 Educational Research Methodology 3 s.h.
21:249 Research Methods 3 s.h.
21:246 Information Science and Technology 3 s.h.
7H:171 The Community College Certification
Students who complete 30 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 of specialization such as information centers or school libraries. 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, 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 of a joint program in records management and information systems.

Undergraduate Study
Although there is no undergraduate major in library and information science, juniors and seniors may enroll in 100-level courses. In addition, the school offers Information Handling, 21:90 designed for freshmen and sophomores.

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, multimedia and statistical operations. They also develop skills in searching electronic catalogs and databases, downloading software and data, and using the Internet.

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.

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 75 percent of the collection as well as databases containing journal indexes and the records of holdings of major research libraries. Many information resources are also available in CD-ROM format.

Students also have full access to the Information Arcade, which facilitates integration of new information and multimedia technologies with learning and research. Here students find a variety of electronic resources for learning advanced information skills and for gaining access to information in various formats and through various networks, including the Internet.
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, Coralville, 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 the Academic 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. The Academic 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 are also active student chapters of the Special Libraries Association and the American Society for Information Science.

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 credentialed file service.

Iowa graduates find positions in all types of libraries. The placement distribution for the past three years was: public libraries, 34 percent; academic libraries, 31 percent; school libraries, 18 percent; and special libraries, 17 percent. Iowa graduates currently work in libraries in 46 states and 9 foreign countries. Strong personal and academic qualifications, job flexibility, and geographic mobility are important factors in obtaining a position.

Admission

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 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 applicant must have at least a 3.00 undergraduate grade-point average and combined verbal/quantitative scores of 1100 on the GRE General Test. Those who do not meet these requirements when entering the program may apply after completing 12 semester hours of graduate work with a 3.00 grade-point average. Prospective students are urged to apply for these awards before March 1. For information on student loans, work-study eligibility, or other financial assistance, contact the Office of Student Financial Aid.

Students interested in part-time employment should contact the libraries in the Iowa City area. Positions usually are available in the University Libraries.

COURSES

21:000 Cooperative Education Internship 0 s.h.
21:90 Information Handling 3 s.h.
21:126 Literature and Storytelling for Children 3 s.h.
21:151 Reference 3 s.h.
21:152 Organization of Information Resources 3 s.h.
21:153 Foundations and Collection Development 3 s.h.
21:155 Information Science 3 s.h.
21:156 Introduction to Library and Information Professions 3 s.h.
21:157 Information Science Methods 3 s.h.
21:158 Information Science in the Workplace 3 s.h.
21:159 Information Science Technology 3 s.h.
21:160 Information Science Supervision 3 s.h.
21:161 Information Science Administration 3 s.h.
21:162 Information Science Evaluation 3 s.h.
21:163 Information Science Research 3 s.h.
21:164 Information Science Policy 3 s.h.
21:165 Information Science Ethics 3 s.h.
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 a Macintosh environment; learning theory, technology policy, 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 H 220.

21:230 Special Libraries and Information Centers 3 s.h.

Management, organizational structures, collections, client services in special libraries; site visits to a variety of special libraries, information centers; projects that apply theoretical principles. 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 the needs of community residents, choosing roles of the library to meet those needs, developing a comprehensive plan to provide resources and services consistent with those 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 of academic libraries of several kinds and sizes; standards, principles, problems and trends. Prerequisites: 21:151, 21:152, 21:153, and 21:201; or consent of instructor.

21:233 School Library Media Center Administration 3 s.h.


21:240 Bibliography 3 s.h.

Information transfer in academic disciplines, scientific method, other forms of knowledge construction, resulting literatures; reference tools used to control literature for a variety of audiences; emphasis on humanities, social sciences, or sciences. Prerequisite: 21:151. Same as H 240.

21:243 Library Materials for Adults 3 s.h.

Quality 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.

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.

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.

21:246 Information Science and Technology 3 s.h.

Scientific and technological content of processes involving information; creation, storage, dissemination, transformation, usage; emphasis on models, methods, technologies, policies influencing these processes.

21:247 Information Storage and Retrieval 3 s.h.

Theories, 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, designing specifications, selecting library automation systems; development of library systems; library management systems; system evaluation. Prerequisite: 21:246.

21:249 Research Methods 3 s.h.

Concepts, techniques of research in library and information science; 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.


21:252 Organization of Information Resources II 3 s.h.

Special problems in description of materials; authority work; file structures; serials, other nontopographic materials; Library of Congress, other classifications; subject retrieval; reclassification, other administrative issues; international bibliographic criteria; online cataloging experience. Prerequisite: 21:153.

21:255 Technical and Serial Services Management 3 s.h.

Management principles in provision of bibliographical and physical access to materials in libraries, information centers; site research, extensive consideration of serials. Prerequisite: 21:152.

21:255 Government Information Resources 3 s.h.

Emphasis on federal documents as an information resource; state, local, foreign, international materials; special concerns of organizing and administering document collections. Prerequisite: 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 and Bibliography 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: 21:151-153 and 21:201; or consent of instructor.

21:265 Law Librarianship, Bibliography, and Research Techniques 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: 21:151-153 and 21:201, or consent of instructor.

21:272 Current Topics in Librarianship 1-3 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 and Information Centers 2-3 s.h.

Supervised field experience in selected libraries and information centers. Consent of instructor required. Prerequisite: 12 semester hours in library and information science.

21:293 Independent Study 1-3 s.h.

Formal contract between student and faculty member. Consent of instructor and formal proposal required.

21:299 Thesis 1-3 s.h.

Consent of director required. Prerequisite: 21:249.

LINGUISTICS

Chair: William D. Davies

Professors: William D. Davies, Nora C. England, Catherine O. Ringen, Jerzy Rubach, Robert S. Wachal

Associate professor: Alice L. Davison

Assistant professors: Christopher Culy, Tamar Kaplan, Cheryl Zoll

Undergraduate degree: B.A. in Linguistics; minor in Linguistics

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

Linguistics is the scientific study of human languages—highly complex systems, made up of subsystems. In turn, each subsystem has its own units and patterns of combination, including word structure (morphology), speech sounds (phonetics) and their patterns of combination and contrast (phonology), sentence structure (syntax), and meaning relations (semantics).

Linguists study subsystems of well-known and familiar languages, such as English, Spanish, Russian, and Chinese. They also study the subsystems of less well-studied languages and even those languages about which little has been discovered. While human languages are different from one another in many ways, there are broad similarities among them, supporting the idea that the capacity for language is part of human cognitive functions.

The description of formal patterns of human language has a number of applications. Linguistics is linked with anthropology and other social sciences in studying the relation of language use to culture, region, class, and gender. It is connected to psychology, and to speech and hearing, in studying how children learn language, how speakers process and interpret language, and how injuries and disorders affect both production and perception of speech. Linguists and computer scientists are discovering ways of identifying and representing sentence structures as part of knowledge and reasoning processes. Linguistics has important ties with instruction in foreign languages and in English as a second language. Studies of how languages are learned are based in part on analysis of the languages in question. They also are grounded strongly in theories of second-language acquisition, which in turn are related to theories of how linguistic knowledge is represented in the mind.

People with linguistic training teach English as a second language and help clinicians retrain people with linguistic disabilities. Some help design school programs for minority groups or people with linguistic disabilities. Some help design school programs for minority groups or people with linguistic disabilities. Some help design school programs for minority groups or people with linguistic disabilities. Some help design school programs for minority groups or people with linguistic disabilities. Some help design school programs for minority groups or people with linguistic disabilities. Some help design school programs for minority groups or people with linguistic disabilities.
Electives (chosen in consultation with undergraduate adviser)

No fewer than 15 semester hours of the major, including 103:110, 103:111, and 103:112, must be completed at The University of Iowa.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

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

Before the fifth semester begins: Introduction to Linguistics and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: two more courses in the major

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

**Honors**

Members of the University Honors Program may graduate with honors in linguistics by completing the major course work plus an honors thesis, which must be prepared in consultation with the student’s academic adviser. Honors students must maintain a grade-point average of at least 3.20.

**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 103:100 Introduction to Linguistics. Course work toward the minor may not be taken pass/nonpass.

**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 as follows.

- 103:110 Articulatory and Acoustic Phonetics 3 s.h.
- 103:111 Syntactic Analysis 3 s.h.
- 103:112 Phonological Theory and Analysis 3 s.h.
- 103:120 Historical and Comparative Linguistics 3 s.h.
- 103:121 Syntactic Theory 3 s.h.
- 103:122 Phonological Theory 3 s.h.

One of these:

- 103:113 Linguistic Field Methods 3 s.h.
- 103:210 Linguistic Structures 3 s.h.
- 103:217 Language Universals and Linguistic Typology 3 s.h.

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 maybe 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 is as follows (total of 18 semester hours).

- Two upper-level syntax courses
- Two upper-level phonology courses
- At least two seminars

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.

**Financial Aid**

Fellowships, teaching assistanceships, and research assistanceships 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 for 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.

**African Language Instruction**

Instruction in African languages, currently Swahili and Yoruba, is provided by native-speaking teachers through the department. Elementary and intermediate Swahili are taught every year, while elementary and intermediate Yoruba are taught alternate years. The classroom emphasis is on oral communication skills, with most instruction being in the African language. Language skills instruction is augmented by discussion of various aspects of the cultures.

Successful completion of one of these two-year sequences satisfies the College of Liberal Arts General Education Program requirements in foreign language. The sequences also satisfy requirements for certain undergraduate programs, for example, those in African American World Studies. Instruction in African languages other than Swahili and Yoruba sometimes can be arranged.

**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 (IEP), and the Teaching Assistant Preparation in English Program (TAPE). These programs meet the needs of students whose first language is not English. The ESL credit support courses help students raise their English proficiency so they can complete a degree successfully. The IEP 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 330 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 and all required ESL courses must be completed before registration in Rhetoric courses. Once enrolled, students may not drop ESL courses. ESL courses may not be taken S/U.

Iowa Intensive English Program (IIEP)
The IIEP primarily serves students on conditional admission and persons who have not yet been admitted to the University and 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 20 hours of classroom instruction each week, plus individual work in the language laboratory. Field trips and cultural and social experiences are an integral part of the program. Students enrolled in the IIEP have full access to all University facilities. The program welcomes international students preparing to enter universities and colleges as well as other adults who want to improve their English skills. Instruction is by full-time professional ESL instructors.

Students admitted to the IIEP receive a certificate of eligibility (Form I-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 sufficient competence in English to profit from it are eligible. TAPE courses are open to graduate students who have been evaluated for TA certification and to others if space is available. Instruction is by full-time professional ESL instructors.

Facilities
The Department of Linguistics has a relatively limited acoustics equipment consisting of a mobile computer equipped with sophisticated speech analysis software, a sound spectrograph, a studio-type tape recorder, and an audiometric chamber. Remote terminals and personal computers are also available to students.

The departmental reading room, which contains a modest library, provides a common meeting place for faculty and students. Students have considerable influence on departmental affairs and enjoy a high degree of individual instruction.

Courses

**Primarily for Undergraduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>103:000</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>103:11</td>
<td>Language and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:15</td>
<td>Elementary Swahili I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>103:16</td>
<td>Elementary Swahili II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>103:17</td>
<td>Intermediate Swahili I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>103:20</td>
<td>Intermediate Swahili II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>103:25</td>
<td>Elementary Yoruba I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>103:26</td>
<td>Elementary Yoruba II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>103:27</td>
<td>Intermediate Yoruba I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>103:28</td>
<td>Intermediate Yoruba II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>103:29</td>
<td>Chinese Historical Phonology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**For Undergraduates and Graduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>103:100</td>
<td>Introduction to Linguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:101</td>
<td>Articulatory and Acoustic Phonetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:11</td>
<td>Language and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:110</td>
<td>Syntactic Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:111</td>
<td>Syntactic Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:112</td>
<td>Phonological Theory and Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:113</td>
<td>Linguistic Field Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:115</td>
<td>Language Processing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:119</td>
<td>Topics in Portuguese Linguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:120</td>
<td>Historical and Comparative Linguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:121</td>
<td>Syntax Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:122</td>
<td>Phonological Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:125</td>
<td>Elementary Swahili I for Graduates</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:126</td>
<td>Elementary Swahili II for Graduates</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:127</td>
<td>Intermediate Swahili I for Graduates</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:128</td>
<td>Intermediate Swahili II for Graduates</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:130</td>
<td>History of the English Language</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:131</td>
<td>Linguistic Field Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:132</td>
<td>Elementary Old English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:133</td>
<td>Elementary Old English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:134</td>
<td>Elementary Old English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:135</td>
<td>Elementary Yoruba I for Graduates</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:136</td>
<td>Elementary Yoruba II for Graduates</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:137</td>
<td>Intermediate Yoruba I for Graduates</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:138</td>
<td>Intermediate Yoruba II for Graduates</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:139</td>
<td>Chinese Historical Phonology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:140</td>
<td>The Structure of English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:141</td>
<td>The Structure of English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:142</td>
<td>Modern English Grammar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:143</td>
<td>Introduction to Chinese Linguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:144</td>
<td>Methods of Teaching English as a Second Language</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
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, 113:173.

103:151 Formalisms 3 s.h.
Basic logic for analyzing argumentation in linguistics (validity, soundness, necessary conditions, sufficient conditions, proof construction); basic mathematics and logic for analysis of natural languages (propositional and predicate calculus, set theory, automaton methods, functions, relations, basic automata theory).

103:153 Sociolinguistics 3 s.h.
Theory and methodology of intralanguage variation; relationship between language variants and socioeconomic class, sex, ethnicity, geography. Prerequisite: 103:100 or equivalent.

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: 113:53, 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 3:177.

103:173 Applied Linguistics 3 s.h.
Variables influencing second-language acquisition; introduction to second-language acquisition theory and research, how they relate to linguistic theory and to second language teaching. Offered fall semesters. Prerequisite: 103:100 or equivalent.

103:175 Introduction to semantics 3 s.h.
Overview of meaning in natural language mapped onto lexical and syntactic structures; formal logical and set theory description; discussion of truth conditions, compositionality, presupposition, definiteness, quantification in natural language. Prerequisite: 103:111 or equivalent.

103:176 Language Development 1-3 s.h.
Prerequisites: 103:172 or 103:300 or consent of instructor. Same as 3:118.

103:177 Basic Neuroscience 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 3:391.

103:199 Special Projects arr.
Theoretical and applied topics.

103:200 Prosodemin in Linguistics 1 s.h.
Core areas of prosodic analysis (phonology, morphosyntax, 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. 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: 3:177 of consent of instructor. Same as 3:218.

Same as 113:271.

103:221 Seminar: Language and Gender 3 s.h.
Role of language and discourse in cultural constructions of gender identities and relations, including domination and subordination; theoretical perspective and methodological approaches that have shaped thought on language/gender nexus. Prerequisites: 113:171; 113:372 or 113:220 or 131:220; and consent of instructor. Same as 113:273.

103:230 Speech Perception 3 s.h.
Classical, contemporary theories; perception in auditory, visual, tactile modalities. Offered fall semesters of even years. Prerequisites: background in phonetics, speech science, and hearing science; or consent of instructor. Same as 3:230.

103:231 History of the German Language 3 s.h.
Same as 13:247.

103:232 History of the Scandinavian Languages 3 s.h.
Same as 13:249.

103:252 Middle High German 3 s.h.
Same as 13:243.

103:262 Topics in Comparative Romance Linguistics 3 s.h.
Prerequisite: 35:204 or equivalent. May be repeated. Same as 20:201,25:207.

103:272 Learning, Memory, and Cognition Same as 31:225.

103:275 Acoustics of Speech 4 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 3:250.

103:300 Seminar: Spanish Linguistics 3 s.h.
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 3:353.

103:370 Seminar: Speech Science 2 s.h.
May be repeated. Consent of instructor required. Same as 3:352.

103:390 Special Projects arr.

103:400 Master’s 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 O s.h.
Aural comprehension, spoken English; American attitudes, vocabulary, basic grammar in conversation and listening; for persons whose English is basic. Offered only through Saturday & Evening Classes. Consent of ESL coordinator required.

103:189 English as a Second Language: Reading Skills 3 s.h.
Increasing reading speed and comprehension of university-level reading materials and vocabulary; exercise, 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
Chair: Jon Ringen
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 liberal arts disciplines.

The LSA major is a general liberal arts bachelor’s degree. LSA students who choose their courses carefully may find that the major 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. Sophomores 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 members 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 requirements of the General Education Program, for the B.A. in Literature, Science, and the Arts are as follows.

LSA courses 12 s.h.
Natural and social sciences 12 s.h.
Philosophy, religion, history 12 s.h.
Literature (foreign literature courses in the original language may be counted toward this requirement) 12 s.h.
Fine arts 3 s.h.
Foreign language: one semester beyond the second year 3 s.h.

LSA majors are also required to submit a statement of purpose describing their goals by their second semester as majors.

Students must complete a minimum of 12 semester hours of LSA courses and at least 12 semester hours of other major courses at The University of Iowa.

Students considering an LSA major should consult with the program chair before the end of their sophomore year.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Courses used to satisfy General Education Program requirements may not be used to satisfy major requirements for the Program in Literature, Science, and the Arts, so students must complete the General Education Program in a timely fashion. Students prepare an individualized plan of study consisting of at least 1/4 courses, including one in foreign language beyond fourth-semester competency, so some students may need to do foreign language work early.

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

Before the fifth semester begins: a plan of study, language competency in the language of choice, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: four more courses from the plan of study

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

Honors

Superior students who undertake a further program of independent study may earn the Bachelor of Arts with honors. To be admitted as candidates for honors, students must have the endorsement of the chair of the 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 be; focus on case studies of professional, personal decision making. GE: humanities.

33:111 Myth and Reason 2-4 s.h.
Theories of reason and rationality presumed to govern knowledge-producing disciplines, and their 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 its potential as seen in works by authors such as Plato, Rabelais, Machiavel, Shakespeare, Locke, Gibbon, Marx; recent fiction, nonfiction. GE: humanities.

33:122 The Experience of Politics 2-4 s.h.
Political experience presented in biographical and autobiographical works. Same as 481/22.

33:140 Evolution Evolving 2-4 s.h.
Concepts and extensions of evolution, Darwin to present, in relation to language, philosophy, sciences, cultural values.

33:144 Mind and Behavior 3 s.h.
Theories of what it is to be and to know and of what intelligence might be in animals, humans, and machines, from perspectives 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, specific cultural, ideological contexts. Same as 9:145, 25:137.

33:151 Individuals and Institutions 2-4 s.h.
Relationships between individuals and institutions viewed through outstanding works of literature, social science, and law; Plato, Sophocles, Burke, de Tocqueville, Melville, Alexander Bickel.

33:152 Values in the Contemporary World 2-4 s.h.
Modern problems in definition and choice of values; writings of contemporary ethical theorists, novelists. Same as 32:140.

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.
An undergraduate degree in mathematics prepares students for a variety of careers in business, and the professions. Research in this living, dynamic subject is at the highest level in history.

Undergraduate Programs

The department offers two undergraduate degrees in mathematics, the Bachelor of Science and the Bachelor of Arts. Students seeking a bachelor's degree enroll in one of three programs: Program A is for students who plan to work in industry or government. It also prepares students for graduate study in mathematics.

Program A: This program is primarily for students who plan to work in industry or government. It also prepares students for graduate study in mathematics.

**CORE COURSES**

*One of these two-semester sequences:*
- 22M:21-22 Calculus and Modeling I-II 8 s.h.
- 22M:25-26 Calculus I-II 8 s.h.
- 22M:35-36 Engineering Calculus I-II 8 s.h.

22M:27 Introduction to Linear Algebra 4 s.h.
22M:50 Introduction to Abstract Algebra I 3 s.h.
22M:55-56 Fundamental Properties of Spaces and Functions I-II 6 s.h.
22M:100 Introduction to Ordinary Differential Equations 3 s.h.

*Advanced placement credit, CLEP credit, and credit obtained through the Mathematics Incentive Program are accepted for all or part of the calculus requirement.

Higher-level courses may be substituted for the core courses, with the Department of Mathematics approval.

**ELECTIVES**

For the B.A. degree: four additional courses chosen from the following list and subject to “Restriction 1”

For the B.S. degree: six additional courses chosen from the following list and subject to both “Restriction 1” and “Restriction 2”

Candidates for all Department of Mathematics undergraduate degrees must satisfy the College of Liberal Arts General Education Program requirements and are encouraged to select General Education courses that use mathematics.

At least 15 semester hours of post-calculus course work applied toward the major requirements must be taken at The University of Iowa.

Students must maintain a grade-point average of at least 2.0 in all course work for the major to earn a degree in mathematics. For 22M:11 and 22M:16, students may use 22M:17, 22M:21, 22M:25, 22M:35, or 22M:45 as a second-grade option. For all other courses, students must repeat the course to use the second-grade option.

Additional requirements concerning transfer credit, credit by correspondence, credit by examination, cumulative grade-point average, rules relating to regression and duplication, and so forth, are discussed in the College of Liberal Arts introductory section of the Catalog.

The Handbook for Undergraduate Majors available in the mathematics department office. It contains useful, detailed information about schedule planning and career options.

Requirements for the B.A. and B.S. in mathematics in programs A and B have changed. Students who declare a major in mathematics after August 26, 1996, must complete the new requirements. Students who declared the major before that date may choose to complete either the old requirements (see the 1994-96 General Catalog) or the new requirements. Students who wish to graduate under the old requirements must complete the major and graduate by August 2000.

Restriction 1

The program must include two courses, both from one of the following groups.

22M:27 Introduction to Linear Algebra 4 s.h.
22M:127 Matrix Theory 3 s.h.
22M:50 Introduction to Abstract Algebra I 3 s.h.
22M:120-121 Abstract Algebra I-II 6 s.h.
22M:55 Fundamental Properties of Spaces and Functions I 3 s.h.
22M:130 Elementary Topology 3 s.h.
22M:132 General Topology 3 s.h.
22M:72 Elementary Numerical Analysis 3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
22M:90 Introduction to Discrete Mathematics 3 s.h.
22M:151 Discrete Mathematical Models 3 s.h.
22M:152 Theory of Graphs 3 s.h.
22M:100 Introduction to Ordinary Differential Equations 2-3 s.h.
22M:140 Continuous Mathematical Models 3 s.h.
22M:142 Intermediate Differential Equations 3 s.h.
22M:100 Introduction to Ordinary Differential Equations 2-3 s.h.
22M:144 Introduction to Partial Differential Equations I 2-3 s.h.
22M:115-116 Introduction to Analysis I-II 6 s.h.
22M:123 Foundations of Set Theory 3 s.h.
22M:124 Foundations of Logic 3 s.h.
22S:133 Probability and Statistics 3 s.h.
22S:130-131 Introduction to Mathematical Statistics I-II 6 s.h.
22S:133 Quality Control 3 s.h.
22S:152 Regression and Design 3 s.h.
22S:153 Mathematical Statistics I 3 s.h.
22S:154 Mathematical Statistics II 3 s.h.
22S:155 Regression Analysis 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:176 Credibility and Loss Distributions 3 s.h.
22S:180 Mathematics of Finance 3 s.h.
22S:181 Life Contingencies I 3 s.h.
Restriction 2
At least two of the remaining four electives must be numbered 22M:106 or above, 22C:135 or above, or 22S:152 or above. The following courses are excluded: 22M:109 and 22M:195; 22S:180 and 22S:181.

Program B
This program is intended primarily for students seeking secondary school teaching licensure. See the Handbook for Undergraduate Majors as well as “Curriculum and Instruction” in the College of Education section of the Catalog.

CORE COURSES
*One of these two–semester sequences:
22M:21–22 Calculus and Modeling I-II 8 s.h.
22M:25–26 Calculus I-II 8 s.h.
22M:35–36 Engineering 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 III 4 s.h.
22M:50 Introduction to Abstract Algebra I 3 s.h.
22M:55 Fundamental Properties of Spaces and Functions I 3 s.h.
22M:70 Foundations of Geometry 3 s.h.
or 22M:106 Transformation Geometry 3 s.h.
22C:16 Introduction to Programming 4 s.h.
22S:120 Probability and Statistics 4 s.h.
22M:90 Introduction to Discrete Mathematics 3 s.h.
or 22M:151 Discrete Mathematical Models 3 s.h.
*Advanced placement credit, CLEP credit, and credit obtained through the Mathematics Incentive Program is accepted for all or part of the calculus requirement.

Higher-level courses may be substituted for the core courses, with Department of Mathematics approval.

ELECTIVES
Program B candidates for the B.A. degree must take at least one additional course beyond calculus. Program B candidates for the B.S. degree must take at least three additional courses beyond calculus, of which two must be numbered 22M:106 or above. With their adviser’s approval, capable students are encouraged to substitute higher-level courses in the same subject area for any of the electives. The Handbook for Undergraduate Majors offers advice on course selection.

Program C
This program provides a degree with specialization in a math–related area, for instance, mathematics of optimal business decision making, economics, physics, biostatistics, biomathematics, or scientific computation. In consultation with the faculty adviser, each student prepares a program of studies tailor–made to his or her future plans or career needs. Building on a core of mathematics courses, students have considerable freedom to design degrees suited to their objectives and academic or professional goals. The proposed program of studies must be approved by the mathematics department’s undergraduate committee.

CORE COURSES
*One of the following two–semester sequences:
22M:21–22 Calculus and Modeling I-II 8 s.h.
22M:25–26 Calculus I-II 8 s.h.
22M:35–36 Engineering 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 III 4 s.h.
or 22M:56 Fundamental Properties of Spaces and Functions II 3 s.h.
One additional proof course (e.g., 22M:50, 22M:51, 22M:55, or 22M:56)

*Advanced placement credit, CLEP credit, and credit obtained through the Mathematics Incentive Program is accepted for all or part of the calculus requirement.

Higher-level courses may be substituted for the core courses, with Department of Mathematics approval.

ELECTIVES
Students choose six electives for the B.S. degree and eight for the B.S. degree. Electives are chosen according to the student’s area of specialization. At least three of the courses must be in mathematical sciences.

For a list of approved subtracks, consult the Handbook for Undergraduate Majors.

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

Note: Much of the work in mathematics must be taken in sequence, so students must begin major requirements as early as possible, and individual plans of study must be worked out carefully. The B.A. degree requires 11 courses, the B.S. 13. Students must choose program A, B, or C by the end of the third semester and must remain in their chosen program until they graduate in order to stay on track for the four–year graduation plan.

Before the third semester begins: course work through calculus 11 and at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: two or three more courses in the major and at least one-half of the semester hours required for graduation
Before the seventh semester begins: three or four more courses and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: two or three more courses
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate.

Honors
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 with a grade of B or better. Advanced course work means the two 100-level sequences 22M:115–116 and 22M:120–121. Other sequences such as 22M:170–171 maybe substituted with the approval of the honors adviser.

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.

Double Major in the Division of Mathematical Sciences
Students who wish 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 in mathematics. Both degrees must be the same – B.A. or B.S. The College of Liberal Arts requires that students seeking a double major in the division earn a minimum of 56 semester hours in courses taken outside the division.

Minor
The minor in mathematics requires a minimum of 15 semester hours earned in Department of Mathematics courses; at least 12 of the 15 must be earned in advanced courses at The University of Iowa. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work; advanced courses are 22M:27 and 22M:28, and all courses numbered 22M:50 or higher, except 22M:81, 22M:104, 22M:109, and 22M:195.

Students seeking a mathematics minor must maintain a grade–point average of at least 2.00 in all work attempted in the department. No course counted toward the minor may be taken pass/nonpass.

Admission and General Information
Information about admission, financial aid, employment opportunities, the faculty, facilities, and other topics is available at the University’s World Wide Web site.
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. The program requires a minimum of 30 semester hours of graduate credit including the following course work in analysis, topology, and abstract algebra.

- 22M:115-116 Introduction to Analysis I/Advanced Operating Systems 6 s.h.
- or
- 22M:210-211 Analysis I-II 6 s.h.
- 22M:132 General Topology 3 s.h.
- 22M:120-121 Abstract Algebra I-II 6 s.h.
- or
- 22M:205-206 Introduction to Algebra I-II 6 s.h.

Each student must take two comprehensive examinations, one on the analysis and topology sequence and the other on the algebra sequence.

Students must take additional course work of at least 24 semester hours in the following.

Mathematics

- Any courses numbered 22M:110 or above, or equivalent

Computer Science

- 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:145 Artificial Intelligence 3 s.h.

Statistics

- 22S:153 Mathematical Statistics I 3 s.h.
- 22S:154 Mathematical Statistics II 3 s.h.
- 22S:167 Introduction to Stochastic Processes 3 s.h.

Any course having any of the above three courses as prerequisites

Any course numbered 22S:200 or above

Program II

This program is designed for secondary school teachers. The requirements are the same as those in program I or III, except that two mathematics education courses are required. All mathematics courses numbered 22M:100 or above may be used to satisfy the 24-semester-hour requirement. Students are encouraged to consult with the mathematics education faculty when planning their courses of study.

Program III

This program focuses on applied mathematics. It requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the Division of Mathematical Sciences.

Students in program III take several courses and two comprehensive examinations, one on differential equations and one on numerical analysis/optimization.

The required courses are as follows.

- 22M:142 Intermediate Differential Equations 3 s.h.
- 22M:144 Introduction to Partial Differential Equations I 2-3 s.h.
- 22M:140 Continuous Mathematical Models 3 s.h.
- or
- 22M:151 Discrete Mathematical Models 3 s.h.
- 22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
- 22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
- 22M:174 Optimization Techniques 3 s.h.

Two of these:

- 22C:116 Advanced Operating Systems 3 s.h.
- 22C:153 Design and Analysis of Algorithms 3 s.h.
- 22M:118 Complex Variables 3 s.h.
- 22M:127 Matrix Theory 3 s.h.
- 22M:140 Continuous Mathematical Models (if not chosen above) 3 s.h.
- 22M:151 Discrete Mathematical Models (if not chosen above) 3 s.h.
- 22S:153 Mathematical Statistics I 3 s.h.
- 22S:154 Mathematical Statistics II 3 s.h.
- 22S:167 Introduction to Stochastic Processes 3 s.h.

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 specific required courses. Course distribution requirements are the same as those for program I.

Students in program IV are considered to have passed the comprehensive examination for the master’s degree in mathematics if they have maintained a grade-point average of at least 3.00 in all mathematics courses taken for the M.S. in mathematics and have successfully completed the Ph.D. comprehensive examination in 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 M.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.

Admission

Admission to an M.S. program (I-III) is based on a combination of undergraduate course work and grades, letters of recommendation, and GRE General Test scores (plus TOEFL scores for foreign students). The following guidelines are current, although exceptions may be made.

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.

They also 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.

Ph.D. students in mathematics must satisfy the following requirements for course work (credits and breadth), examinations, foreign language, and the Ph.D. thesis.

Students must earn at least 72 semester hours of graduate credit and spend at least three years in residence at a graduate college, including at least one year at The University of Iowa. They also should enroll in specific courses designated as preparatory for the Ph.D. comprehensive examination (consult the director of graduate studies in mathematics).

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. Students choose three areas from the department’s list of comprehensive examination areas. They must select two of the following: algebra, analysis, logic, and topology; and either a third area from those four, or partial differential equations.

For each comprehensive area, there is a two-week, 200-level course sequence designated as preparatory, although exams may differ from course content. The three parts of the exam 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 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 dissertation. The department expects this to be original mathematical work comparable in content and writing quality to that found in standard published research journals. The thesis is written under the supervision of a 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 (plus TOEFL scores for foreign students). See the information on admission to Master of Science 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, and TOEFL score of at least 575. New graduate students often are admitted as master’s candidates even if they intend to go on for a Ph.D.

**General Information**

Information about financial support, employment opportunities, the faculty, facilities, and other topics is available at the University’s World Wide Web site.

---

**Courses**

**Undergraduate: Lower Division**

These courses are not open to graduate students except by special arrangement with the department chair. Credit earned in 22M:1, 22M:2, or 22M:3 cannot be counted toward degree requirements.

*Although the sequences 22M:21-22, 22M:25-26, and 22M:35-36 are quite similar, they cover the material in a different order and with different emphases. Students must consult with their adviser before taking the second semester of one sequence after taking the first semester of another.*

**22M:0 Cooperative Education Internship**

0 s.h.

**22M:1 Basic Algebra I**

3 s.h.

Percent, ratio and proportion, algebraic expressions and operations, simple products, linear and quadratic equations, simultaneous equations, exponents and radicals, emphasis on verbal problems.

**22M:2 Basic Algebra II**

3 s.h.

Algebraic techniques, equations and inequalities, functions and graphs, exponential and logarithmic functions, systems of equations and inequalities. Prerequisite: 22M:1 or satisfactory score on math placement exam or one year of high school algebra.

**22M:3 Basic Geometry**

3 s.h.

Angles, triangles, circles, area, Pythagorean theorem, parallel and perpendicular lines, distance, similarity, similarity transformations. Offered spring semesters. Prerequisite: 22M:1 or satisfactory score on math placement exam or one year of high school geometry.

**22M:4 Theory of Arithmetic**

3 s.h.

Study of sets, numeration, whole numbers, integers, rational numbers, and number theory. Offered spring semesters. Prerequisite: 22M:1 or satisfactory score on math placement exam or equivalent or consent of instructor.

**22M:5 Trigonometry**

3 s.h.

Trigonometric functions, solutions of right and oblique triangles, complex numbers. Prerequisite: 22M:2 or satisfactory score on math placement exam or two years of high school algebra and one year of high school geometry.

**22M:9 Elementary Functions**

3-4 s.h.

Relations, functions, coordinate systems; properties and graphs of algebraic, trigonometric, logarithmic, exponential functions; inverse trigonometric functions; properties of lines, conic sections. GE: quantitative or formal reasoning. Prerequisite: 22M:5 or satisfactory score on math placement exam, or two years of high school algebra and one year of high school geometry.

**22M:10 Finite Mathematics**

4 s.h.

Introduction to logic, set theory, linear equations and inequalities, linear programming, matrix algebra, combinatorial probability. GE: quantitative or formal reasoning. Offered fall semesters. Prerequisite: 22M:2 or satisfactory score on math placement exam or two-and-a-half years of high school mathematics.

**22M:11 Introduction to Calculus with Applications**

4 s.h.

Short course in derivatives and integrals with applications. GE: quantitative or formal reasoning. Offered spring semesters. Prerequisite: 22M:1 or satisfactory score on math placement exam or two-and-a-half years of high school mathematics.

**22M:15 Mathematics for the Biological Sciences**

4 s.h.

Relations, functions, coordinate systems, graphing, polynomials, trigonometric functions, logarithmic and exponential functions; discrete mathematics, probability examples and applications from biological sciences. GE: quantitative or formal reasoning. Prerequisite: 22M:2 or satisfactory score on math placement exam or three years of high school mathematics.

**22M:16 Calculus for the Biological Sciences**

4 s.h.

Differential, integral calculus; differential equations, multivariable calculus; applications to life sciences. GE: quantitative or formal reasoning. Prerequisite: 22M:15 or satisfactory score on math placement exam or three and one-half years of high school mathematics, including trigonometry.

**22M:17 Quantitative Methods I**

4 s.h.

Quantitative methods for treating problems arising in management, economic sciences, related areas; introduction to differential and integral calculus, systems of linear equations, matrix theory. GE: quantitative or formal reasoning. Prerequisite: 22M:2 or a satisfactory score on math placement exam.

**22M:21 Calculus and Modeling I**

4 s.h.

Fundamental concepts and methods similar in scope to 22M:25-26, but with increased emphasis on modeling of scientific phenomena; computing with Mathematical or Maple in associated laboratory. GE: quantitative or formal reasoning. Prerequisite: 22M:9 or 22M:2 and 22M:5; or three-and-a-half years of high school mathematics, including analytic geometry and trigonometry.

**22M:22 Calculus and Modeling II**

Continuation of 22M:21, which is prerequisite.

**22M:25 Calculus I**

4 s.h.

Fundamental concepts, methods, techniques of single-variable differential and integral calculus; differentiation, techniques of integration, series, applications. GE: quantitative or formal reasoning. Prerequisite: 22M:9; or 22M:2 and 22M:5; or three and one-half years of high school mathematics, including analytic geometry and trigonometry. Recommended: concurrent enrollment in 22M:30.

**22M:26 Calculus II**

4 s.h.

Continuation of 22M:25. Prerequisite: 22M:25 or 22M:35 or 22M:45 or consent of instructor. Recommended: concurrent enrollment in 22M:31.

**22M:27 Introduction to Linear Algebra**

4 s.h.

Vector algebra and geometry of three-dimensional Euclidean space and extensions to n-space and vector spaces; lines and planes, matrices, linear transformations, systems of linear equations, reduction to row echelon form, dimension, rank, determinants, eigenvalues and eigenvectors. Prerequisites: 22M:21 or 22M:25 or 22M:35 or 22M:45 or consent of instructor. Recommended: concurrent enrollment in 22M:32.

**22M:28 Calculus III**

4 s.h.

Multivariable calculus, vector functions, line integrals, total differentials, gradient, implicit functions, coordinate systems, Taylor’s expansion, extrema, multiple integrals, vector fields, surface integrals, Stokes’s theorem. Prerequisite: 22M:22 or 22M:26 or 22M:35 or 22M:46 or consent of instructor.

**22M:30 Computer Lab for Calculus I**

1 s.h.

Use of computer as an aid to understanding concepts, techniques of calculus. Corequisite: 22M:25 or 22M:35 or 22M:45.

**22M:31 Computer Lab for Calculus II**

1 s.h.

Continuation of 22M:30. Corequisite: 22M:26 or 22M:35 or 22M:46.

**22M:32 Computer Lab for Linear Algebra**

1 s.h.

Use of computer as an aid to understanding concepts, techniques of linear algebra. Corequisite: 22M:27.

**22M:35 Engineering Calculus I**

4 s.h.

One-variable calculus key to engineering program; derivative, curve sketching, word problems, trigonometric derivatives, three-dimensional vector algebra, plane motion; definite integral and applications. GE: quantitative or formal reasoning. Prerequisite: 22M:9 or 22M:9, or three and one-half years of high school mathematics, including introduction to analytic geometry, trigonometry.

**22M:36 Engineering Calculus II**

4 s.h.

Applications of integration, natural log and exponential, formal integration, conics, quadratics, weighted averages, infinite series, vectors, lines and planes in space, vector-valued functions of a single variable. Prerequisite: 22M:21 or 22M:25 or 22M:35 or 22M:45 or consent of instructor.

**22M:40 Matrix Algebra for Engineers**

2 s.h.


**22M:41 Differential Equations for Engineers**

3 s.h.

Methods of solution of first-order differential equations, higher order differential equations, systems of linear differential equations, including Laplace transforms. Prerequisite: 22M:36 or 22M:22 or 22M:26 or 22M:46. Corequisite: 22M:40.

**22M:42 Vector Calculus for Engineers**

3 s.h.

Vector calculus key to engineering program; directional and partial derivatives, gradients; Taylor’s formula, max-min problems, multiple integrals, coordinate systems, surface integrals, vector fields. Prerequisite: 22M:36 or 22M:22 or 22M:26 or 22M:46 or consent of instructor.
Elementary Topics of General Interest

These courses are not open to graduate students except by special arrangement with the department chair.

22M:50 Introduction to Abstract Algebra I 3 s.h.
Basic logic, proof methods, sets, functions, relations, mathematical induction; gradual transition from familiar number systems to abstract structures—division algorithm, unique factorization theorems; construction of integers, rationals, reals; Euclidean, unique factorization domains; rings, fields. Prerequisite: 22M:27 or consent of instructor. Corequisites: 22M:26 or 22M:55.

22M:51 Introduction to Abstract Algebra II 3 s.h.
Continuation of 22M:50, which is prerequisite; ideals and field extensions, introduction to groups, finite groups, finite abelian groups. Prerequisite: 22M:50 or graduate standing or consent of instructor.

22M:55 Fundamental Properties of Spaces and Functions I 3 s.h.
Elementary topological and analytic properties of real numbers; emphasis on ability to handle definitions, theorems, proofs. Prerequisite: 22M:27 or consent of instructor.

22M:56 Fundamentals Properties of Spaces and Functions II 3 s.h.
Multivariable analysis; Bolzano-Weierstrass theorem in three-dimensional Euclidean space, differential calculus, inverse and implicit function theorems, multiple integrals, surface and line integrals, differential forms and Stokes' theorem in n-dimensional Euclidean space. Closed to students who have taken 22M:28 and 22M:55. Prerequisite: grade of B or higher in 22M:27 and 22M:55.

22M:70 Foundations of Geometry 3 s.h.
Axiomatic development of common foundation for Euclidean, non-Euclidean geometry constructions of non-Euclidean models, independence of parallel postulate. Prerequisite: 22M:22 or 22M:26 or 22M:36 or 22M:46 or equivalent.

22M:72 Elementary Numerical Analysis 3 s.h.
Numerical methods for roots of equations, integration, solutions of simultaneous linear equations, polynomial approximation, solutions of ordinary differential equations; illustrative programming projects. Prerequisites: grade of C- or higher in 22M:22 or 22M:26 or 22M:36 or 22M:46, and programming experience. Same as C 255.

22M:81 Geometry for Elementary Teachers 3 s.h.
Points, lines, planes; measurement, two- and three-dimensional coordinate geometry, transformational geometry and vectors; applications of geometry to solve real-world problems. Open only to elementary teaching certificate candidates and certified elementary teachers. Offered spring semesters. Prerequisite: 22M:1 or equivalent.

22M:90 Introduction to Discrete Mathematics 3 s.h.
Basic methods of enumerative combinatorics, inclusion-exclusion and generating functions, applications of group theory (Pólya-Burnside theorem). Offered fall semesters. Prerequisite: 22M:50.

Undergraduate: Upper Division

Graduate students in mathematics may not receive credit in 22M:100 or 22M:104.

22M:100 Introduction to Ordinary Differential Equations 2-3 s.h.
First-order ordinary differential equations; second-order linear differential equations; series solutions; higher-order linear and matrix differential equations; existence and uniqueness theorems. Prerequisites: 22M:27 and 22M:28, or consent of instructor.

22M:104 Introduction to Matrix Theory 3 s.h.
Matrices, linear transformations, determinants, Hermite form, characteristic roots, applications. Graduate standing or consent of instructor required.

22M:106 Transformation Geometry 3 s.h.
Euclidean geometry through automorphisms of the plane; geometry and algebra connected through group structure of important sets of transformations; emphasis on plane isometries, similarities, and solving-congruence algorithms. Prerequisite: 22M:50 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 Mathematical Induction 3 s.h.
Role of formalism, Intuitionism, Platonism in shaping foundations of mathematics; nature of mathematical existence and truth; God's incompleteness theorems; axiom of choice; philosophical differences between various set theories (e.g., Zermelo-Fraenkel, Gödel-von Neumann), category theory, other valid foundations of mathematics; relationship between mathematics, physics. 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, extreme, multivariate integrals, vector fields, surface integrals, Stoke's 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 22M:109 or consent of instructor.

22M:120 Abstract Algebra I 3 s.h.
Groups, rings, fields, modules, homomorphisms, ideals, polynomials and other basic topics, selected structure theorems. 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 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, quantifiers, introduction to axiomatic theorems. Prerequisite: 22M:50 or 22M:55 or graduate standing or consent of instructor.

22M:126 Elementary Theory of Numbers 2-3 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 forms, similarity, orthogonal transformations, bilinear and quadratic forms. Prerequisite: 22M:27 or 22M:40 or 22M:104.

22M:130 Elementary Topology 3 s.h.
Introduction to topology of Euclidean spaces and manifolds; emphasis on basic set ideas (disks, spheres, annuli, Cantor sets) in dimensions 1, 2, 3: continuous maps, homomorphisms, and embedding; connectedness and paths; convergence and compactness; manifolds, homotopy, contractible sets, Brouwer 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 metric spaces and extensions of maps; infinite products and Tychonoff theorem; complete metric spaces; materials on nets, filters, uniform structures. Prerequisite: 22M:115 or 22M:130 or graduate standing or consent of instructor.

22M:140 Continuous Mathematical Models 3 s.h.
Building and analyzing mathematical models involving differential equations for specific problems from engineering and the sciences; modeling project. Prerequisite: 22M:100 or consent of instructor.

22M:142 Intermediate Differential Equations 3 s.h.
Nonlinear differential equations, with emphasis on qualitative behavior of solutions; approximation, stability, asymptotic behavior, phase plane techniques. Sturm-Liouville boundary value problems, integral equations, functional differential equations. Prerequisite: 22M:100 or equivalent or consent of instructor.

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, Fourier and Laplace transforms, approximation methods. Prerequisite: 22M:144 or consent of instructor.

22M:151 Discrete Mathematical Models 3 s.h.
Case study approach to decision making in various fields (e.g., genetics, psychology, health care, scheduling; construction, interpretation, analysis, simulation, testing of models; development of discrete mathematics. Prerequisite: 22M:127 or equivalent.

22M:160 Discrete Mathematical Models 3 s.h.
Space curves, differentiable manifolds, vector and tensor fields, integration of forms, covariant differentiation, intrinsic geometry of surfaces. Prerequisite: 22M:55 or 22M:100 or consent of instructor.

22M:161 Introduction to Discrete Geometry II 3 s.h.
May include Riemannian geometry, rigidity theorems, minimal surfaces, connections, elementary Lie groups, relativity. Prerequisite: 22M:160 or consent of instructor.

22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
Root finding for nonlinear equations; polynomial interpolation; polynomial approximation of functions; numerical integration. Prerequisites: 22M:27 and 22M:28, or 22M:40 and 22M:42, or consent of instructor; and knowledge of computer programming.

22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
Numerical methods for initial value problems for ordinary differential equations; direct and iterative methods for linear systems of equations; eigenvalues and eigenvectors. Prerequisites: 22M:28 or 22M:41 or consent of instructor; and knowledge of computer programming.

22M:174 Optimization Techniques 3 s.h.
Basic theory of optimization, use of numerical algorithm 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.
Derivation 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. Prerequisites: 22M:170 and 22M:171, or consent of instructor.

22M:176 Finite Element Method for Partial Differential Equations 3 s.h.
Variance principles, finite element subspaces, b- p, h- p-versions, convergence analysis; shape functions, computation of stiffness matrices and load vectors; the effect of numerical integrations, post-processing, error control, adaptivity, applications. Prerequisites: 22M:170 and 22M:171, or consent of instructor.
190 Liberal Arts. Mathematics

22M:178 Parallel and Vector Algorithms in Scientific Computing 3 s.h.
Current implementations of basic linear algebra techniques for selected parallel and/or vector machines, with applications to numerical solution of (partial) differential equations; programming experience on Encore Multimax, 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 2-3 s.h.
Education and objectives, curricular problems, review and evaluation of current literature, special methods. Consent of instructor required. Same as 7E:235, 7S:235.

22M:196 Topics in Mathematics 3-5 s.h.
Consent of instructor required.

22M:197 Individual Study and Honors in Mathematics 3-5 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 2-5 s.h.
Consent of department chair required.

Core Graduate Courses

22M:200 Introduction to Differential Topology 3 s.h.
Manifolds, functions: tangent bundle, Morse-Sard theorem, transversality, submanifolds, tubular neighborhoods, normal bundles, vector fields, degree and intersection theory, fixed-point theory, Morse theory. Prerequisite: 22M:132 or equivalent.

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:203 Topology of Manifolds 3 s.h.
Embedding, knotting, immersions; isotopy, homotopy, regular neighborhoods, engulfing, surgery, cobordism; three-, four-, and higher dimensional manifolds. Prerequisites: 22M:200 and 22M:201, or 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 measures 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.
Hilbert space, Banach space techniques; Hahn-Banach theorem, open mapping theorem, principle of uniform boundedness, reflexivity, H-P spaces, Paley-Wiener theorem, space of functions analytic on the open unit disk. Prerequisites: 22M:118 and 22M:210, or equivalents.

22M:213 Ordinary Differential Equations I 3 s.h.
Existence, uniqueness, continuous dependence of solutions to initial value problems, autonomous systems; Picone-Br investor theorem, linear systems and linearizations, perturbation, stability, periodic solutions, bifurcation, comparison and oscillation theorems, boundary value problems. Prerequisite: 22M:116 or equivalent.

22M:214 Ordinary Differential Equations II 3 s.h.
Continuation of 22M:213. Prerequisite: 22M:213 or consent of instructor.

22M:216 Partial Differential Equations I 3 s.h.
Elliptic equations; potential theory, maximum principle, a priori estimate, Dirichlet problem; initial value problem for parabolic equations; hyperbolic equations; Duhamel’s principle, Cauchy problem; nonlinear equations, characteristics, canonical form, first-order systems. Prerequisite: 22M:116 or consent of instructor.

22M:217 Partial Differential Equations II 3 s.h.
Continuation of 22M:216. Prerequisite: 22M:216 or consent of instructor.

22M:220 Introduction to Mathematical Logic I 3 s.h.
Propositional calculus, first-order predicate calculus, Godel completeness theorem, formal elementary number theory, incompleteness theorem. Graduate standing or consent of instructor required.

22M:221 Introduction to Mathematical Logic II 3 s.h.
Formal number theory, arithmetic hierarchy, Post theorem, formal recursive functions, Turing machines, Thue systems, world problems. Prerequisite: 22M:220.

Primarily for Graduates

22M:260 Differential Geometry I 3 s.h.
Differential manifolds and functions, form, connections, curvature, related topics. Consent of instructor required.

22M:261 Differential Geometry II 3 s.h.
Continuation of 22M: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:115-116 and 22M:170-171, or consent of instructor.

22M:303 Topics in Analysis 2-3 s.h.
Measure theory, integration, general topology. May be 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-theory, PL manifolds, infinite-dimensional 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-Millman theorem, Choquet’s theory; geometry of Banach spaces, nonlinear functional analysis; operators on Hilbert spaces, spectral theorem, algebras of operators. Prerequisite: 22M:211 or equivalent.

22M:314 Functional Analysis II 3 s.h.
Continuation of 22M:313. Prerequisite: 22M:313 or equivalent.

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:221 or consent of instructor.

22M:330 Topics in Algebra 2-3 s.h.
Algebraic number theory, groups, group representation, algebraic geometry, 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: 22S: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.
Prerequisites: 22M:170 and 22M:171, or consent of instructor.

22M:385 Seminar: Representation Theory 3 s.h.
Consent of instructor required.

22M:386 Seminar in Undergraduate Mathematics Education 3 s.h.
Varied topics in teaching, learning, curriculum, philosophy, objectives, strategies, methods; use of technology, group learning, projects, discovery method, multiple approaches, other current issues. May be repeated. Consent of instructor required.

22M:387 Seminar: Differential Geometry 2 s.h.
Consent of instructor required.

22M:388 Seminar in Nonassociative Rings 2 s.h.
Consent of instructor required.

22M:390 Seminar: Operator Theory 3 s.h.
Consent of instructor required.

22M:391 Seminar: Logic and Foundations of Mathematics 3 s.h.
Consent of instructor required.

22M:392 Seminar: Topology 3 s.h.
Consent of instructor required.

22M:393 Seminar: Mathematical Physics 3 s.h.
Consent of instructor required.

22M:395 Seminar: Analysis 3 s.h.
Consent of instructor required.

22M:396 Seminar: Functional Analysis 3 s.h.
Consent of instructor required.

22M:397 Seminar: Partial Differential Equations 3 s.h.
Consent of instructor required.

22M:398 Seminar: Numerical Analysis 3 s.h.
Consent of instructor required.

22M:399 Reading Research 3 s.h.
Consent of advisor required.

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. Galask (Obstetrics and Gynecology), David T. Gibson (Biocatalysts Professor), E. Peter Greenberg, Charles Gröse (Pediatrics), Caroline S. Harwood, Louis G. Hoffmann, William Johnson, John D. Kemp (Pathology), David M. Lubars (Urology), Richard G. Lynch (Pathology), Stanley Periman (Pediatrics), Erich W. Six, Donald P. Stably, George V. Stauffer, Mark F. Stinski, C. Martin Stoltzfus
Associate professors emeriti: Robert L. Richardson, Jose E. Rodriguez, Donald H. Walker Jr.
Assistant professors: John T. Harry, Bradley D. Jones, Linda L. McCarter, Richard J. Roller
Undergraduate degree: B.S. in Microbiology; minor in Microbiology
Graduate 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 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 study at the University. It provides adequate 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 complete the General Education Program requirements of the College of Liberal Arts. They must complete a minimum of 21 semester hours in microbiology to obtain a B.S. degree. Of these, at least 12 must be taken at The University of Iowa in courses numbered 61:147 and above. No more than 2 semester hours of 61:161 or 61:171 and 1 semester hour of 61:163 may be counted toward the 21-semester-hour requirement. Students may count 61:218, but not 61:220, toward this requirement.

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 (and have the instructor’s consent for specified courses). Mathematics and science courses required by the department for the B.S. degree may not be taken pass/nonpass.

Microbiology Seminar (61:163) should be taken for credit only once during the senior year. Students are encouraged to take the course for 0 semester hours during other semesters after they have taken 61:157.

Microbiology majors must take the following courses in addition to required microbiology courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:13 Principles of Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:14 Principles of Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:16 Principles of Chemistry Lab</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>4:121 Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:122 Organic Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:141 Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>99:120 Biochemistry and Molecular Biology I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:130 Biochemistry and Molecular Biology II</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

One of these:

22M:16 Calculus for the Biological Sciences
22M:21 Calculus and Modeling I
22M:25 Calculus I
22M:35 Engineering Calculus I
2:10-11 Principles of Biology I-II
29:11-12 College Physics

In addition, the following courses are recommended.

8W:100 Nonfiction Writing
or
8W:112 Writing for the Sciences
22C:1 Survey of Computing

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

Before the third semester begins: 4:13, 4:14, and 4:16; 2:10; an approved calculus class; and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: 2:11; 4:121, 4:122, and 4:141; 61:157; and at least one-half of the semester hours required for graduation.

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

Before the eighth semester begins: 10-12 more semester hours of course work.

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

Honors
The honors program is open to juniors and seniors who have a grade-point average of at least 3.20 overall and in microbiology courses. The program requires 25 semester hours of course work in microbiology, including 6 semester hours in Microbiology, which constitutes 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 grade-point average of at least 2.00. Of these 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 61:147 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. Interdisciplinary Ph.D. programs in genetics, immunology and molecular biology are 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
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 of records 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 courses must take them 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 Principles of Infectious Diseases arr.
Principles, methods essential to study of microorganisms, their isolation and identification; microorganisms involved in infectious diseases, current concepts of immunology. Medical student standing or consent of course director required.
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 3-4 s.h.
Fundamentals of cellular and molecular immunology and their application to clinical problems; optional laboratory. Prerequisite: 61:157 with a grade of C or higher or an introductory 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; laboratory emphasis on basic techniques. Prerequisites: 2:10 and 2:11. Corequisites: 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. Same as 148:159.
61:160 Microbial Physiology 3 s.h.
Microbial cell structure and function, growth, energy metabolism, biosynthesis, control mechanisms; laboratory supplement in 61:180. Consent of instructor required. Prerequisites: 61:157 with a grade of C or higher and a biochemistry course.
61:161 Problems in Microbiology arr.
Research under faculty supervision. May be repeated. 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 preningning standing or consent of instructor required.
61:165 Clinical Laboratory Microbiology arr.
Fundamental, practical training in isolating, identifying bacteria and fungi from human 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: 61:165.
61:168 Introduction to Animal Viruses 2.4 s.h.
Basic physical, chemical, biological properties of animal viruses, their association with human disease; optional laboratory with emphasis on methods and techniques. Consent of instructor required. Prerequisite: 6:1:157 with a grade of C or higher.
61:169 Medical Mycology 4 s.h.
Basic techniques used to study fungi pathogenic to human beings, lower animals, and plants. Consent of instructor required. 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. May be repeated. Junior or senior standing and grade-point average of at least 3.20 required.
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. Prerequisites: 61:157, and 61:160 or 61:170, with grades of C or higher.
61:180 Microbial Physiology Laboratory 2 s.h.
61:201 Immunology I 3 s.h.
Ontogeny, activation, and function of T lymphocytes, 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. Same as 148:201.
61:202 Immunology II 3 s.h.
Immunoglobulin molecular mechanisms, genetic regulation, generation of antigenic diversity, ligand-receptor interactions, cell signaling, immune effectors mechanisms, including cytokine T cells, natural killer cells, macrophages, neutrophils, complement; adhesion molecules; cell migration and homing; emphasis on problem-oriented experimental approaches. Prerequisite: 61:201 or 148:201. Same as 148:202.
61:207 Advanced Topics in Immunology 3 s.h.
Literature; sketch; presentation; Consent of instructor required. Prerequisites: 61:201 and 61:202, or 148:201 and 148:202, or equivalents. Same as 148:221.
61:215 Genetics Seminar 0.2 s.h.
61:217 Graduate Immunology Seminar 1 s.h.
Current University of Iowa research.
61:218 Electron Microscopy Techniques 3 s.h.
Methods of tissue preparation, 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: a biological science course. Same as 2:218, 60:218.
Individually designed projects, library searches, seminar and workshop participation. Consent of instructor required. Prerequisite: introductory EM course. Same as 2:220, 60:220.
61:250 Topics: Bacterial Molecular Pathogenesis 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 a bacterial genetics course. Same as 148:250.
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 eukaryotic cells; mechanisms of viral latency, persistence, cellular transformation, oncogenesis. Open only to biological science majors. Prerequisite: 61:170 or equivalent, or a course in biochemistry. Same as 148:268.
61:275 Perspectives in Biodiagnostics 1 s.h.

Military Science

(ARMY ROTC)

Head: Lt. Col. David E. Malott
Professor: Lt. Col. David E. Malott
Assistant professor: Capt. David J. Poirier

The Military Science Department administers the Army ROTC program. Although it does not grant degrees, it is an academic department that provides students with education in the role of the military and instruction in leadership and management. It gives students who want to serve on active or reserve status in the armed forces the opportunity to earn commissions as Army officers.

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.
The basic course requirements may be taken over a one-year or two-year period or during a six-week paid camp during the summer. Students with prior military training normally are 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 $150 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 Army 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:

23:91 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.

Students desiring a commission must complete one course from each of the following categories. These courses may be the same as those used to satisfy the College of Liberal Arts General Education Program requirements. Students earning a degree in nursing or engineering normally are exempt from these requirements.

**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: Europe’s Expansion Overseas 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:5 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 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 pay all or most of tuition at The University of Iowa, $450 for books and supplies each year, all or most mandatory educational fees, and a tax-free subsistence allowance of $150 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 Army National Guard unit.

**Molecular Biology**

Graduate degree: Ph.D. in Molecular Biology

The Ph.D. program in molecular biology is interdepartmental, 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

Chair and director: George D. Schrimper
Assistant professor: George D. Schrimper
Adjunct assistant professor: Mine Guldbeck
Adjunct instructors: Julia Golden, Bruce A. Scherting
Adjunct instructor: Barbara Deur

Iowa’s Museum Studies Program is the oldest of more than 100 university- and college-based museum curricula in the United States, having offered courses continuously since 1910. Its students have become directors, curators, educators, and exhibit specialists in museums throughout the country. The program offers courses that provide a fundamental background in the history, organization, function, and management of museums, affording special emphasis on exhibit design, collection management, and education outreach development.

A major in one of the natural sciences (biological sciences or geology), anthropology, science education, art history, American studies, or history is recommended for students preparing for museum careers. Courses are offered during the summer session as well as during the regular academic year. These elective courses count as credit toward any undergraduate degree. An area of specialization (administration, curation, exhibit design and graphics, educational programming) also can be tailored to the student’s museum career objective with appropriate elective courses in other departments.

For graduate work, courses may be credited as a formal museology concentration toward a master’s degree in anthropology or science education, or toward a Ph.D. degree in science education. Inquiries regarding program details should be directed to the appropriate major department.

Museum studies courses are of value not only to students intending to pursue careers in museums but also to those with related interests in the arts, the sciences, or the humanities. Museum studies can be useful in many career areas, including archaeology, anthropology, history, American studies, communication studies, elementary and secondary education, historic preservation, library science, recreation and leisure, art history and studio art, and science education.

Museum Facilities

The museum studies program has access to several excellent museum facilities. The Museum of Natural History shares its collections, galleries, and exhibit production facilities with the Museum Studies Program. Founded in 1858, it 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. Students can gain first-hand experience through supervised participation in its programs, as well as in other programs at The University of Iowa and at other institutions.

The University of Iowa Museum of Art houses significant collections of more than 9,000 objects and several outstanding collections, among them the Stanley Collection of African art, the Mauricio Lasansky print collection, and the Eliott Collection of pre-Columbian and 19th- and 20th-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 museum students, they enrich campus life by providing added dimension to the learning experience.

Courses

24:900 Cooperative Education Internship 0 s.h.
24:102 Introduction to Meseology 3 s.h.
History, philosophy, organization, function, programs of various kinds of museums and related cultural institutions; emphasis on American museums; GE: fine arts or humanities. Same as 78:112, 28:102, 97:115, 113:103.
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: permission of instructor.
24:106 Museum Laboratory Methods 2 s.h.
Techniques used to prepare classroom teaching materials and museum exhibit accessories; instruction in casting, mold-making, and modeling procedures used in replication or preservation of a biological, historical, geological, or biological materials. May be repeated.
24:113 Introduction to Conservation of Museum Objects 2 s.h.
Theory and methods of museum collections conservation, handling, exhibition, repository preservation; emphasis on composition of museum objects and how objects react with their exhibition and storage environments.
24:120 Collection Care and Management 2 s.h.
Relationship of a museum’s management policy to its administrative, legal, and ethical obligations to its collections; acquisitions, deaccessions, collection use, data standards, storage environment, health, safety, documentation. Same as 12:120.
24:146 Organization of Information Resources 1 s.h.
Same as 27:132.
24:150 Directed Studies and Projects arr.
Advanced readings in historical development, educational philosophy, programs, operations of museums; individual projects coordinated with exhibits, or collections of campus and area museums. May be repeated. Prerequisite: 24:102, 24:104, or 24:120.
24:180 Museum Internship arr.
Working experience in departments, programs of the sponsoring museum; relation to museum’s overall mission and museum field in general.

MUSIC

Director: David Nelson
Associate directors: Delbert Disselhorst, John Hill, Maurita Murphy Mead

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 nonmajors, the opportunity for further study of music. In addition to its comprehensive course offerings for majors, the school provides a substantial selection of courses especially recommended for nonmajors. See “Music for Nonmajors” in this section of the Catalog.

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.A. 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. All students must complete their senior recital, research project, or thesis at The University of Iowa.
Bachelor of Music

GENERAL COURSE REQUIREMENTS

All baccalaureate candidates in music must satisfy the College of Liberal Arts General Education Program requirements as well as the following School of Music course requirements.

25:1 Fundamentals of Music for Majors (or successful completion of the undergraduate theory examination) 3 s.h.
25:2-5 Musicianship and Theory I-II 16 s.h.
25:71-72 Group Instruction in Piano I-II (or successful completion of proficiency exams I and II) 2 s.h.

Registration in Group Instruction in Piano I-II 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 completed upper-level applied status or be enrolled in an upper-level applied music course; see “Applied Music.” 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 chosen 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.
25:118 Jazz Theory 2 s.h.
25:155 Composition 2 s.h.
25:145 Counterpoint Before 1600 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.
One of these:
25:101 Introduction to Improvisation 2 s.h.
25:102 Jazz Improvisation 2 s.h.
25:243 Advanced Jazz Improvisation 2 s.h.
25:244 Transcription 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 semester hours (not including summer) in lower-level applied instruction. Those who want to continue lessons beyond the maximum allowable lower-level registration must do so under the nonmajor category.

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 their adviser’s consent. Composition and music history majors may, with their adviser’s consent, substitute other ensembles.

Any requests for adjustment of this requirement must 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.

Major ensembles are:
25:142 Camerata Singers 0-1 s.h.
25:181 University Choir 0-1 s.h.
25:185 Kantorei 0-1 s.h.
25:191 University Chorale 0-1 s.h.
25:192 Orchestra 0-1 s.h.
25:194 Symphony Band/Concert Band/University Band 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. This course work is chosen from a list of electives unique to each performance major area. Course listings for each of the respective areas are available from the School of Music academic 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 to the 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 sit for the board certification examination. To increase their job opportunities in the education sector, students are encouraged to complete music teacher licensure requirements. Complete information on the program is available in the music education office.

Specific course requirements for the major in music therapy are as follows.

78:144 Psychology of Music 2 s.h.
78:149 Behavioral Research in Music 2 s.h.
25:74 Recital Attendance (four semester hours 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.
25:17 Secondary Performance-Voice (2 semester hours required) 1 s.h.
25:71 Group Instruction in Piano I 1 s.h.
25:72 Group Instruction in Piano II 1 s.h.
25:73 Group Instruction in Piano III 1 s.h.
25:78 Beginning Folk Guitar 2 s.h.
25:105 Instrumental Techniques 2 s.h.
25:117 Arranging for Band or Orchestra 2 s.h.
25:94 Music Therapy Practicum (senior research project) 1 s.h.
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, 6 semester hours of ensemble, and two additional courses, as follows.

Music Therapy Emphasis

Students may substitute other ensembles.
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 adviser.

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 Program requirements must be met for each. Students should consult their adviser, the area head, or the School of Music academic 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.

Composition Major

25:147 Counterpoint After 1600 3 s.h. or 25:155 Composition 2 s.h.
25:101 Introduction to Improvisation 2 s.h. or 25:118 Jazz Theory 2 s.h.

STRING MAJORS

Secondary Performance Instruction for Majors (violin and viola majors take one year of 25:23 Cello; cellists and bass majors take one year of 25:21 Violin)
25:100 Class Strings 2 s.h.
(violinists take viola and bass; violists take violin and bass; cellists take viola and bassists take viola and cello)
7E:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
7E:192 Special Area Student Teaching 6 s.h.
7S:96 Introduction and Practicum: Music 2 s.h.
7S:143 Instrumental Techniques 2 s.h.
7S:150 String Methods and Materials 4 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.
25:108/7S:145 Instrumental Conducting 2 s.h.

String 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 6 s.h.
7S:96 Introduction and Practicum: Music 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

The following courses are required.

7E:145 Methods and Materials: Elementary School General Music 3 s.h.
7E:192 Special Area Student Teaching 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 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.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan.

Bachelor of Arts

Only 50 semester hours from School of Music courses may be counted toward the 124 semester hours required for the B.A. degree.

Before the third semester begins: 16-18 semester hours of course work in the major including 25:2, 25:3, 25:71, and 25:72; and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: at least 28-32 semester hours of course work in the major, including 25:4 and 25:5, and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: at least 40-46 semester hours of course work in the major and at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: at least 46-50 semester hours of course work in the major.

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

Bachelor of Music

Students may apply more than 50 semester hours from School of Music courses toward the 124 semester hours required for the B.M. degree.

Before the third semester begins: 18 semester hours of course work in the major,
including 25:2, 25:3, 25:71, and 25:72; and at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: at least 34 semester hours of course work in the major, including 25:4 and 25:5, and at least one-half of the semester hours required for graduation
Before the seventh semester begins: at least 50 semester hours of course work in the major and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: at least 56 semester hours of course work in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

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 University Honors Program. They also may take part in the School of Music’s honors program. 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. All honors course work must be approved by the School of Music honors adviser.
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; students must earn a minimum of 3 semester hours 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 courses in music history, music theory, and languages are particularly recommended. An honors committee appointed by the 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 School of Music academic 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 curriculum 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 academic 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 must pass either or both 25:301 and 25:302 Advanced Music History I-II, depending on their scores, before they may register for any elective music theory course.

Students whose scores on the music history advisory examination indicate deficiencies must pass either or both 25:147 and 25:148 Advanced Music Literature 1600-1750 and 1750-1825, depending on the distribution of their scores, before they may register for any elective music history course. Credit from 25:301 and 25:302 (or their equivalents) is required for all graduate degrees in music.

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.
25:240 Analytical Techniques (unless exempt through advisory examination) 3 s.h.
One elective chosen from these:
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.
25:313 Major Composers 3 s.h.
25:314 Genres of Music 3 s.h.
25:319 Foundations of Ethnomusicology 3 s.h.
25:323 Medieval Music Notations 3 s.h.
25:324 Renaissance Music Notations 3 s.h.
25:330 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, enrolled 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 the following.

Minimum course requirements listed under the M.A. degree

One or more additional music theory courses listed in the master’s degree requirements

One or more additional courses in music history, chosen from those listed in the master’s degree requirements

One of these:
- 25:500 Ph.D. Thesis
- 25:501 Composition Ph.D. Thesis
- 25:502 D.M.A. Essay

Proficiency in one or more foreign languages is required in some areas.

Ensemble requirements are the same as described under “Master of Arts” 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 have already achieved a professional level of musical performance. These students are required to audition in their major performance area.

Information about specific admission and curricular requirements for each area is available from the School of Music academic office.

Doctor of Musical Arts

Requirements for the D.M.A. degree in performance and pedagogy are the same as the school’s general doctoral requirements, 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.

Certificate in Sacred Music

The certificate is more extensive than a minor, though somewhat less so than a major, with a broad focus on areas of study related to sacred music. It may be earned while working toward a graduate degree. The certificate may also be completed apart from the pursuit of a graduate degree, the prerequisite being admission to the Graduate College and consent of the faculty adviser for the certificate.

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 required courses must successfully complete those courses before being admitted to the minor.

Required Courses

- 25:145 Counterpoint Before 1600 3 s.h.
- 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 (concurrent with 25:236) 0-1 s.h.
- 25:242 History of Music Theory II 2 s.h.

Six semester hours from these:
- 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.

- 25:000 Cooperative Education Internship 0 s.h.
- 25:10 Fundamentals of Music 3 s.h.
- 25:13-14 Masterpieces of Music 6-8 s.h.
- 25:59 Performance Instruction for Non-Majors 1 s.h.
- 25:64 Recital Attendance for Non-Majors 1 s.h.
- 25:74 Recital Attendance (for majors) 1 s.h.
- 25:78 Beginning Folk Guitar 2 s.h.
- 25:82 Group Piano I: Non-Music 1 s.h.
- 25:84 Group Piano II: NonMusic 1 s.h.
- 25:103 World Music I: Africa, Asia, Europe 3 s.h.
- 25:104 Music of Latin America and the Caribbean 3 s.h.
- 25:106 History of Black Music 3 s.h.
- 25:141 History of Jazz 3 s.h.
- 25:144 History of Music I 3 s.h.
- 25:146 History of Music II 3 s.h.
- 25:159 Survey of Music Masterpieces I 3-4 s.h.
- 25:160 Survey of Music Masterpieces II 3-4 s.h.
- 25:177 Music, Media, and Popular Culture 3 s.h.
- 25:178 Music, Culture, and Identity 3 s.h.
- 25:179 Nationalism and Music 3 s.h.

Other courses appropriate for nonmajors are 25:103, 25:104, 25:144, and 25:146; they are described under the heading “Music History.” See also 25:141 under the heading “Jazz Studies.”

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 20th-century music. It presents several concerts of contemporary works each academic season. It also provides a forum for visiting composers and other creative artists, bringing new music to a variety of outreach venues, 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 Voxman Music Building includes 55 teaching studios, 73 practice rooms, a library, three 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, an Instructional Technology Center with 12 microcomputers with MIDI equipment and music-related software, seven practice and recital organs, the 80-seat Krapf Organ Studio, and the 720-seat Clapp Recital Hall. Hancher Auditorium seats 2,680 people for concerts and 2,400 for operas and other stage productions.

Resources of the Rita Benton Music Library include more than 80,000 volumes of music and books, some 3,000 titles in microformats, more than 14,000 sound recordings and videos (cassettes and laserdiscs), and 300 current periodicals in several languages. The collection of reference materials is particularly strong, supporting research in many areas of musical study. The rare book holdings include a large number of late 18th- and 19th-century scores. The library’s quarters in the Voxman Music Building provide seating for 100 people in the reading room and 35 at the listening stations in the sound recordings room. Physical facilities also include a combined rare book and seminar room and spaces for microform readers, computers, and video machines.

Courses

General

Other courses appropriate for nonmajors are 25:103, 25:104, 25:144, and 25:146; they are described under the heading “Music History.” See also 25:141 under the heading “Jazz Studies.”
25:00 Cooperative Education Internship 0 s.h.
25:10 Fundamentals of Music 3 s.h.
25:12 Masterpieces of Music from late 18th through 19th centuries. GE: fine arts or humanities.
25:14 Masterpieces of Music 3-4 s.h.
25:15 Mastercomposers of early 18th century, and from 1890s to present. GE: fine arts or humanities.

*25:59 Performance Instruction for Non-Majors Bassoon, cello, clarinet, euphonium, flute, horn, oboe, organ, percussion, piano, saxophone, string bass, trombone, trumpet, tuba, viola, violin, or voice. Open only to nonmajors. GE: fine arts or humanities.
25:64 Recital Attendance for Non-Majors 1 s.h.
25:67 Recital Attendance 1 s.h.
25:78 Beginning Folk Guitar 2 s.h.
25:79 Group Piano I: Non-Music 1 s.h.
25:84 Group Piano II: Non-Music 1 s.h.
25:106 History of Black Music 3 s.h.
25:171 Music Evolution: A Comprehensible View 3 s.h.
25:177 Music, Media and Popular Culture 3 s.h.
25:178 Music, Culture and Identity 3 s.h.
25:179 Nationalism and Music 3 s.h.

Applied Music

Institution consists of individual and/or class lessons, at the 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-course basis, in addition to tuition.

UNDERGRADUATE MAJOR-LOWER LEVEL
25:40 Lower Level Voice arr.
25:41 Lower Level Piano arr.
25:42 Lower Level Organ arr.
25:44 Lower Level Violin arr.
25:45 Lower Level Viola arr.
25:46 Lower Level Cello arr.
25:47 Lower Level String Bass arr.
25:48 Lower Level Flute arr.
25:49 Lower Level Oboe arr.
25:50 Lower Level Clarinet arr.
25:51 Lower Level Bassoon arr.
25:52 Lower Level Saxophone arr.
25:53 Lower Level Horn arr.
25:54 Lower Level Trumpet arr.
25:55 Lower Level Euphonium arr.
25:56 Lower Level Trombone arr.
25:57 Lower Level Tuba arr.
25:58 Lower Level Percussion arr.

UNDERGRADUATE MAJOR-UPPER LEVEL
25:120 Upper Level Piano arr.
25:121 Upper Level Organ arr.
25:122 Upper Level Violin arr.
25:123 Upper Level Viola arr.
25:124 Upper Level Cello arr.
25:126 Upper Level Flute arr.
25:127 Upper Level Oboe arr.
25:129 Upper Level Bassoon arr.
25:130 Upper Level Saxophone arr.
25:131 Upper Level Horn arr.
25:132 Upper Level Trumpet arr.
25:133 Upper Level Euphonium arr.
25:134 Upper Level Trombone arr.
25:135 Upper Level Tuba arr.
25:136 Upper Level Percussion arr.

GRADUATE MAJOR
25:263 Major Voice arr.
25:264 Major Piano arr.
25:266 Major Organ arr.
25:267 Major Violin arr.
25:268 Major Viola arr.
25:269 Major Cello arr.
25:270 Major String Bass arr.
25:271 Major Flute arr.
25:272 Major Oboe arr.
25:273 Major clarinet arr.
25:274 Major Bassoon arr.
25:275 Major Saxophone arr.
25:276 Major Horn arr.
25:277 Major Trumpet arr.
25:278 Major Euphonium arr.
25:279 Major Trombone arr.
25:280 Major Tuba arr.

SECONDARY PERFORMANCE INSTRUCTION FOR MAJORS

Instruction consists of one half-hour lesson or two hours of class instruction weekly, at instructor’s option. Offered on a fee-per-course basis, in addition to tuition.
25:17 Secondary Performance-Voice 1 s.h.
25:18 Secondary Performance-Piano 1 s.h.
25:19 Secondary Performance-Organ 1 s.h.
25:21 Secondary Performance-Violin 1 s.h.
25:22 Secondary Performance-Viola 1 s.h.
25:23 Secondary Performance-Cello 1 s.h.
25:24 Secondary Performance-String Bass 1 s.h.
25:25 Secondary Performance-Flute 1 s.h.
25:26 Secondary Performance-Oboe 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.
25:36 Secondary Performance-Cello 1 s.h.
25:37 Secondary Performance-Flute 1 s.h.
25:38 Secondary Performance-Oboe 1 s.h.
25:39 Secondary Performance-Clarinet 1 s.h.
25:40 Secondary Performance-Bassoon 1 s.h.
25:41 Secondary Performance-Saxophone 1 s.h.
25:42 Secondary Performance-Horn 1 s.h.
25:43 Secondary Performance-Euphonium 1 s.h.
25:44 Secondary Performance-Trombone 1 s.h.
25:45 Secondary Performance-Tuba 1 s.h.
25:46 Secondary Performance-Percussion 1 s.h.
25:47 Secondary Performance-String Bass 1 s.h.
25:48 Secondary Performance-Flute 1 s.h.
25:49 Secondary Performance-Oboe 1 s.h.
25:50 Secondary Performance-Clarinet 1 s.h.
25:51 Secondary Performance-Bassoon 1 s.h.
25:52 Secondary Performance-Saxophone 1 s.h.
25:53 Secondary Performance-Horn 1 s.h.
25:54 Secondary Performance-Euphonium 1 s.h.
25:55 secondary Performance-Trombone 1 s.h.
25:56 secondary Performance-Tuba 1 s.h.
25:57 secondary Performance-Percussion 1 s.h.

Choral Literature
25:225 Score Reading 1 s.h.
25:261 Advanced Choral Literature I 3 s.h.
25:262 Advanced Choral Literature II 3 s.h.
25:263 Advanced Choral Literature III 3 s.h.
25:264 Advanced Choral Literature IV 3 s.h.
25:265 Advanced Choral Literature V 3 s.h.
25:266 Advanced Choral Literature VI 3 s.h.
25:267 Advanced Choral Literature VII 3 s.h.
25:268 Advanced Choral Literature VIII 3 s.h.

Composition
25:155 Composition 2 s.h.
25:156 Composition Seminar 0-1 s.h.
25:157 Orchestration 2 s.h.

Advanced experimental composition in association with analog, digital technologies. Consent of instructor required.

25:241 Major Percussion arr.
25:242 Major Tuba arr.
25:243 Major Flute arr.
25:244 Major Clarinet arr.
25:245 Major Bassoon arr.
25:246 Major Saxophone arr.
25:247 Major Oboe arr.
25:248 Major Trumpet arr.
25:249 Major Euphonium arr.
25:250 Composition Electronic Media I 3 s.h.
25:251 Composition Electronic Media II 3 s.h.
25:252 Composition Electronic Media III 3 s.h.
25:253 Composition Electronic Media IV 3 s.h.
Workshop based on collaboration between Writer’s Workshop and School of Music composers; emphasis on creation of new performance works. Same as WN 497.

Conducting

See also 25:108, 25:109, and 25:110, under the heading “Music Education.”

25:107 Techniques of Conducting 2 s.h.
Basic elements, score analysis.

25:158 Advanced Conducting 2 s.h.
Prerequisite: elementary conducting skills.

25:203 Advanced Choral Conducting I 3 s.h.
Literature, style, conducting techniques, and methods of Renaissance and Baroque eras. Offered fall semesters. Corequisite: 25:261.

25:204 Advanced Choral Conducting II 3 s.h.

25:205 Advanced Choral Conducting III 3 s.h.

25:206 Advanced Choral Conducting IV 3 s.h.

25:207 Advanced Choral Conducting V 3 s.h.

25:208 Advanced Choral Conducting VI 3 s.h.


Ensembles

No fee is charged; courses maybe repeated; consent of instructor required.

25:60 Steel Pan Ensemble 1 s.h.
Basic instruction and ensemble performance of steel pan from Trinidad; includes musical and cultural introduction to calypso and steel pan music in Trinidad, elsewhere. Consent of instructor required.

25:95 Old Gold Singers 0-2 s.h.

25:142 Camerata Singers 1 s.h.

25:180 Large Pep Band 1 s.h.
Performing ensemble for men’s basketball games during spring semester. Prerequisite: membership in marching band (25:193) and audition.

25:181 University Choir arr.

25:183 Chamber Orchestra 0-1 s.h.

25:184 Collegium Musicum arr.

25:185 Kantorei arr.

25:186 Piano Accompaniment arr.


25:188 String chamber Music arr.

25:190 Wind Chamber Music Preparation, performance of representative literature; sections for woodwinds, brass, flute, clarinet, horn, double reed, trumpet, trombone.

25:191 University Chorale arr.

25:192 Orchestra 0-1 s.h.

25:193 Marching Band 0-1 s.h.
Offered fall semesters.

25:194 Symphony Band/Concert Band/University Band 0-1 s.h.


Jazz Studies

25:101 Introduction to Improvisation Prerequisite: 25:2 or consent of instructor. 2 s.h.


25:118 Jazz Theory 2 s.h.
Rhythm, melody, harmony in jazz practice; ear training, keyboard skills, dictation, transcription. Prerequisite: 25:2 or consent of instructor.

25:141 History of Jazz 3 s.h.
Offered spring semesters. GE: cultural diversity. Prerequisite: 25:4 or equivalent.

25:196 Jazz Band Techniques 1 s.h.
Consent of instructor required.

25:197 Jazz Band arr.
Prerequisite: 25:101 or 25:102.


25:241 Advanced Jazz Improvisation 2 s.h.
May be repeated. Prerequisite: 25:102 or consent of instructor.
Corequisite: 25:224.

25:244 Transcription 2 s.h.
Transcriptions of improvisations, small ensemble arrangements, large ensemble compositions; computer/midi realization. Prerequisite: 25:118 or consent of instructor.

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.

See also 25:196 listed under the heading “Jazz Studies.”

25:100 Class Strings arr.
Study of a secondary string instrument. Open only to string majors.

25:105 instrumental Techniques 1.3 s.h.
Fundamental skills in wind, percussion instruments. Same as 78:143.

25:108 instrumental conducting Advanced skills; score analysis, rehearsal techniques, literature selection. Same as 78:145. Prerequisite: 25:107.

25:109 Choral Methods 3 s.h.
Effective choral music programs for all ages. Same as 78:147.


25:111 Child and Adolescent Voice Production 2 s.h.
Teaching children, adolescents to sing; emphasis on principles, techniques of voice production, pedagogy. Same as 78:139.

25:112 String Methods and Materials 2 s.h.
Same as 78:146.

25:117 Arranging for Band 2 s.h.
Scoring and arranging techniques for concert, marching bands. Offered spring semesters.

25:182 Marching Band Techniques 1 s.h.
Administration, charting. Offered spring semesters.

Band literature; history.

25:220 Music Education Workshop 1 s.h.
For inservice music teachers; topics vary. Offered summer sessions only. Same as 75:241.

Music History

Note: Courses 25:303-25:309, 25:313-25:314, 25:323-25:324, and 25:321-25:322 deal with periods and special topics in music history. They are offered about every two years. All of them have as prerequisites 25:301 and 25:302, or the equivalents, or consent of instructor.

This listing includes several courses appropriate for nonmajors. Other music history courses appropriate for nonmajors are listed under the heading “General.”

25:103 World Music I: Africa, Asia, Europe 3 s.h.
Folk and popular music and social contexts in Africa, Asia, Europe; listening skills; video/film screenings. GE: fine arts or foreign civilization and culture or humanities.

25:104 Music of Latin America and the Caribbean 3 s.h.
Folk and popular musical traditions and their social contexts in Latin America the Caribbean; listening skills; video/film screenings. Offered spring semesters. GE: fine arts or humanities.

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.
GE: fine arts or 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.
GE: fine arts or historical perspectives. Prerequisites: 25:3 and 25:4, or equivalents, for majors; consent of instructor for nonmajors.

3-4 s.h.

3-4 s.h.

25:238 Musicology Colloquium 0 s.h.

25:301 Advanced History and Literature of Music I 3 s.h.
History and style of Medieval, Renaissance, and Baroque music (750-1750). Offered fall semesters.

25:302 Advanced History and Literature of Music II 3 s.h.
History and style of Classical, 19th-century, and 20th-century music (1750-present). Offered spring semesters.

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.

25:312 Major Composers 3 s.h.
Life and works of one important composer; to be announced in advance of registration. Maybe repeated.

25:314 Genres of Music 3 s.h.
One major genre in the history of music; to be announced in advance of registration. Maybe repeated.

25:319 Foundations of Ethnomusicology 3 s.h.
Ethnomusicology in relation to domains of musical, humanitarian, social science scholarship on expressive culture and artistic processes. Senior standing and consent of instructor required. Same as 113:206.

25:320 Introduction to Musicology 3 s.h.
Methods, materials of research in historical musicology field of musicology. Offered fall semesters. Prerequisite: for 1 s.h. credit, 25:321 or equivalent. Corequisite: for 3 s.h. credit, 25:321.

25:321 Introduction to Graduate Study in Music Music library; reference materials; bibliography; research problems, methods; writing research papers. Offered fall semesters.

25:323 Medieval Music Notations 3 s.h.
Chant neumes, medieval black notation, musical and textual paleography; transcription of early vocal and instrumental notations; editorial problems.

25:324 Renaissance Music Notations 3 s.h.
Renaissance white notation, keyboard tablatures, musical paleography; transcription of early vocal, instrumental notations; editorial problems.
Music and Technology

See also 25:250-251 Composition; Electronic Media I-II listed under “Composition.”

25:213 Fundamentals of Piano Technology 1 s.h.
Offered spring semesters.

25:214 Recording Techniques 3 s.h.
Consent of instructor required.

25:218 Art and Technology I 3 s.h.
Consent of instructor required.

25:219 Art and Technology II 3 s.h.
Consent of instructor required.

Music Therapy

25:94 Music Therapy Practicum 1-3 s.h.
Supervised clinical training with adult clients and children in a variety of health care settings. Open only to music therapy majors. Prerequisite: 25:114.

25:96 Music Techniques in Special Education and Recreation 2-3 s.h.
Music methods and materials appropriate for the disabled student in special education and recreational settings; overview of individualized educational planning for students with disabilities. Music therapy or music education majors or consent of instructor required.

25:114 Orientation to Music Therapy 2 s.h.
Theory, practice; typical clients, places of employment.

25:138 Music Therapy Techniques: Atypical Children 3 s.h.
Techniques, procedures for use in clinical, educational settings. Open only to music therapy students. Prerequisite: 25:114.

25:139 Music Therapy Techniques: Adult Clients 3 s.h.
Techniques, procedures for work with disabled adult clients. Open only to music therapy students. Prerequisite: 25:114.

25:140 Internship in Music Therapy 2 s.h.
Clinical training under direction of registered music therapist.

25:221 Special Studies in Music Therapy 2-3 s.h.
Individual research. Open only to music therapy students. May be repeated. Consent of instructor required.

Orchestral and Band Instruments

See also 25:112, under the heading “Music Education.”

Contemporary percussion literature, current styles, notation, techniques of performance and composition. Consent of instructor required.

25:168 Audition Repertoire 1 s.h.
Practices on passages frequently requested at professional auditions; mock auditions scheduled once a year. Consent of studio instructor required.

25:209 Advanced Instrumental Methods and Literature I 1-2 s.h.
Techniques, solo, ensemble, study material for wind, percussion instruments. Offered fall semesters.

25:210 Advanced Instrumental Methods and Literature II 1-2 s.h.
Offered spring semesters.

Organ and Sacred Music

25:189 Organ Literature Survey 2 s.h.
Fifteenth century to present. Advanced undergraduate or graduate standing required. 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.

25:226 History of Organ Building and Design 2-3 s.h.
Development of organ design from Middle Ages to present; basic concepts of construction, maintenance. May be repeated.

25:227 Liturgy 1-2 s.h.
History of liturgies and survey of liturgical music from Judaism to present.

25:228 Service Playing and Improvisation 1-2 s.h.
Hymn playing, accompanying, basic improvisation techniques. May be repeated. Organ major or consent of instructor required.

25:229 Organ Literature Special Topics 2 s.h.
Specialized study in selected areas of organ literature. Graduate standing or consent of instructor required. May be repeated.

25:252 Hymnology 1-2 s.h.
Survey of historic hymnody: ancient odes, Latin hymns, Reformation hymns and psalms; current developments in hymnody and hymnals; maybe special topic study. Maybe repeated.

25:284 Studies in Church Music 2 s.h.
Individual projects in church music: liturgies, hymnody, church choir repertory; religion and the arts.

Piano

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; continued skill development begun in 25:71; introduction of easy solo and ensemble literature. Prerequisite: 25:71 or successful completion of piano proficiency examination. Corequisite: 25:3.

25:72 Group Instruction in Piano II 1 s.h.
Elementary to early intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; continued skill development from 25:71; introduction of easy solo and ensemble literature. Prerequisite: 25:72 or successful completion of proficiency examination. Corequisite: 25:3.

25:73 Group Instruction in Piano III 1 s.h.
Intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; continued skill development from 25:72; intermediate solo and ensemble literature; modern chording. Prerequisite: 25:72 or successful completion of proficiency examination II.

25:113 Methods of Teaching Piano I 2-3 s.h.
Methods, materials, teaching techniques for preschool; elementary, intermediate, advanced precollege, adult students. May be repeated.

25:232 Piano Pedagogy I 2 s.h.
Historical survey of piano technique theories; central nervous system and piano playing; problems of playing, teaching; application of learning theories to piano teaching; development of piano performance; college level group piano instruction, including techniques, materials, and supervised teaching experience. Offered fall semesters.

25:283 Brass Pedagogy 1 s.h.
Teaching techniques. Graduate standing or consent of instructor required.

25:292 String Pedagogy 2-3 s.h.
Concepts important in teaching young students in classes and/or individual settings; performance techniques, aspects of musical development.

25:293 String Instrument Literature arr.


25:335 Seminar in Woodwind Research 1 s.h.

25:340 Seminar in Brass Research 1 s.h.

25:381 Readings in Music History arr.

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 performing vocal and instrumental music before 1600; theoretical and social issues in performance.

25:332 Performance Practices II: Seventeenth- and Eighteenth-Century Music 3 s.h.
Practical approaches to performing music of the Classical and Baroque eras.

25:333 Seminar in Performance Practice 1 s.h.

Performance by pianists taking course for credit.


25:402 M.A. Recital arr.


25:503 D.M.A. Recital arr.

Theory

25:1 Fundamentals of Music for Majors 3 s.h.
Music fundamentals through writing, hearing, performance; notation of pitch and rhythm; intervals, scales, triadic harmony; elements of tonality, key signatures, major and minor modes; sight-singing; dictation. Offered fall semesters. Corequisite: 25:71 or successful completion of piano proficiency examination.

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 examination. 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 examination.

25:4 Musicianship and Theory III 4 s.h.
Continuation of 25:2-3; focus on common-practice repertory. Offered fall semesters.

25:5 Musicianship and Theory IV 4 s.h.
Continuation of 25:2-4; focus on 20th-century repertories. Offered spring semesters.

25:11 Review Theory 1 s.h.
Open only to graduate students. Offered summer sessions.

25:145 Counterpoint Before 1600 3 s.h.
Writing, analysis. Offered spring semesters of even years. Prerequisite: 25:4 or equivalent.

25:147 Counterpoint After 1600 3 s.h.
Writing, analysis. Offered spring semesters of odd years. Prerequisite: 25:5 or 25:11 or equivalent.

25:148 Analysis of Music Literature 1600-1750 3 s.h.
May be repeated. Prerequisite: 25:4 or equivalent.

25:149 Analysis of Music Literature 1750-1825 3 s.h.
May be repeated. Prerequisite: 25:4 or equivalent.

25:150 Analysis of Music Literature 1825-1900 3 s.h.
May be repeated. Prerequisite: 25:5 or 25:11 or equivalent.
Offered spring semesters. May be repeated.

25:151 Analysis of Music Literature
1890-Present 3 s.h.
May be repeated. Prerequisite: 25:5 or equivalent.

25:152 Analysis of Music Literature Special Topics 3 s.h.
Prerequisite: 25:5 or 25:11 or equivalent.

25:153 Keyboard Harmony 1-2 s.h.
May be repeated. Prerequisites: 25:4 and keyboard proficiency.

25:212 Gregorian Chant 3 s.h.
Analysis, performance practice; organization of Roman liturgy.
Offered spring semesters of even years. Recommended: some knowledge of Latin.

25:236 Methods and Techniques of Teaching Basic Theory 3 s.h.
Kinds of music theories-speculative, analytical, empirical; textbooks; pedagogical skills and techniques, including computer-aided instruction. Offered fall semesters.


25:240 Analytical Techniques 3 s.h.
Theories, strategies of analysis applied to tonal repertories (late Renaissance/early Baroque through early 20th century, e.g. Debussy); acquisition of diverse analytical skills; score study; aural comprehension. Offered spring semesters.

25:241 History of Music Theory I 2 s.h.
Offered fall semesters.

25:242 History of Music Theory II 2 s.h.
Offered spring semesters.


**Voice and Opera**

25:115 Diction for Singers I 2 s.h.
English and French; theory of correct pronunciation for singing; no previous background necessary. Offered fall semesters.

25:116 Diction for Singers II 2 s.h.
German and Italian; theory of correct pronunciation for singing; no previous background necessary. Offered spring semesters.

25:165 Opera Dance Theatre Production 1-2 s.h.
Experience in technical theater (costume or scene shop). May be repeated.

25:201 Principles of Voice Production 3 s.h.
Physical, physiological, pedagogical principles in professional, nonprofessional, and impaired voice production; anatomy, voice classification, control of loudness, pitch, register, quality; efficient, efficient use of voice; instrumentation for voice analysis, synthesis. Offered fall semesters. Same as 3:202.

25:202 Methods of Teaching Voice 3 s.h.
Attitude, musicianship, foreign language aptitude, physical and emotional characteristics; mental images used to modify respiratory, phonatory, articulatory behavior; vocal hygiene; performance anxiety; student-teacher relationships; administration in vocal schools, professional organizations. Offered spring semesters. Same as 3:202.

25:216 Interpretation of German Art Song arr.
Focus on Schubert, Schumann, Brahms, Wolf, Strauss, Mahler; diction, style. Offered fall semesters.

25:217 Interpretation of Non-German Art Song arr.
Focus on English, French, Italian, Spanish; diction, style. Offered spring semesters.

25:245 Opera Theater: Roles 2 s.h.
Opera performance in workshops and/or productions. Maybe repeated.

25:246 Opera Theater: Chorus 1 s.h.
Chorus roles from vocal, dramatic standpoints. May be repeated. Offered spring semesters.

Experience in directing scenes and/or one-act operas. Maybe repeated.

25:249 Opera Coaching and Accompanying arr.
May be repeated.

Important operatic scenes examined from standpoint of performers, directors; production problems.

25:351 Survey of Song Literature I 3 s.h.
Italian, Scandinavian, Spanish, Slavic, and Russian art song repertoire. Offered spring semesters of even years.

25:352 Survey of Song Literature II 3 s.h.
German language Lieder from Schubert to present. Offered fall semesters of even years.

25:353 Survey of Song Literature III 3 s.h.
French art song repertoire. Offered spring semesters of odd years.

25:354 Survey of Song Literature IV 3 s.h.
Nineteenth- and 20th-century British and North American songs. Offered fall semesters of odd years.

**NEUROSCIENCE**

Graduate degree: Ph.D. in Neuroscience

The Ph.D. program in neuroscience is interdisciplinary, involving members of the Departments of Anatomy, Biological Sciences, Pharmacology, Physiology and Biophysics, and Psychology as well as a number of faculty members from clinical departments. See “Neuroscience” in the College of Medicine section of the Catalog for a list of participating faculty members, degree requirements, and courses.

**PHILOSOPHY AND ETHICS OF POLITICS, LAW, AND ECONOMICS**

Director: Phillip Cummins

Undergraduate degree: certificate in Philosophies and Ethics of Politics, Law, and Economics

The College of Liberal Arts offers an interdisciplinary program that leads to a certificate in Philosophies and Ethics of Politics, Law, and Economics (PEOPLE). The PEOPLE program is based on the assumption that societies institutionalize values; they guide conduct by regulating opportunities, prescribing behavior, and influencing beliefs and attitudes. The goal of the PEOPLE program is to help students 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 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.

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 already have taken several courses that satisfy PEOPLE requirements. This is not uncommon, since many courses satisfy multiple requirements.

The final 18 semester hours used to complete the certificate must be taken at The University of Iowa.

**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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6E:1 Principles of Macroeconomics</td>
<td>3-4 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:104 Macroeconomic Theory</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:179 History of Economic Thought</td>
<td>2-3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6E:111 Labor Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:113 Health Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:133 Environmental and Natural Resource Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:135 Regional and Urban Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:141 Economics of American Industries</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:143 Introduction to the Economics of Transportation</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:171 Antitrust Legal and Economic Analysis</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:172 Law and Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:177 Industrial Organization</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**Microeconomics Track**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6E:6 Principles of Microeconomics</td>
<td>3-4 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:105 Macroeconomics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:179 History of Economic Thought</td>
<td>2-3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6E:117 Money, Banking, and Financial Markets</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:119 Economics of the Government Sector</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:125 International Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:129 Economic Growth and Development</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:163 Comparative Economies</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:173 Advanced International Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:174 Monetary Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:176 Public Sector Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**PHILOSOPHY**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>26:102 Introduction to Ethics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>26:132 Introduction to Political Philosophy</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>
One of these:
26:34 Philosophy and the Just Society 3 s.h.
26:111 Ancient Philosophy 3 s.h.
26:112 Medieval Philosophy 3 s.h.
26:114 Seventeenth-Century Philosophy 3 s.h.
26:116 Eighteenth-Century Philosophy 3 s.h.
26:117 Nineteenth-Century Philosophy 3 s.h.
26:118 Twentieth-Century Philosophy 3 s.h.
26:125 American Philosophy 3 s.h.
26:141 Existentialist 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.

POI'TICS
Students using political science as their foundation may not select this field.

One of these:
30:30 Introduction to Political Thought and Political Action 3 s.h.
30:70 Introduction to Political Communication 3 s.h.

Three of these:
30:118 Law and Social Change 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.

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 of these:
144:201 Jurisprudence 2-3 s.h.
144:205 Legal Reasoning arr.

One of these:
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 arr.

One of these:
8:259 Law and Lawyers in Literature 1-3 s.h.
30:117 The Politics of Civil Rights and Liberties 3 s.h.
30:118 Law and Social Change 3 s.h.
30:174 Women and the Law 3 s.h.
47:192 Human Rights in the World Community: Problems of Law and Policy 3 s.h.
144:211 Native American Law I 3 s.h.

Integration
Two courses (6 semester hours) are required.

Theory of Inquiry
One of these:
26:104 Introduction to Philosophy of Science 3 s.h.
26:196 Philosophy of the Human Sciences 3 s.h.
30:100 Understanding Political Research 3 s.h.
30:180 Honors Seminar on the Study of Politics 3 s.h.

Seminar
One of these:
33:151 Individuals and Institutions 3 s.h.
33:153 Hard Cases: Science Policy and Values 3 s.h.
33:155 Risk Technology and the Public 3 s.h.
33:157 Democracy and the Rule of Law 3 s.h.
144:144 Seminar: Reasons, Causes, and Values 3 s.h.

Courses
144:144 Seminar: Reasons, Causes, and Values 3 s.h.
Topics that cross boundaries between philosophy, political science, law, economics.
144:201 Jurisprudence 2-3 s.h.
Selected legal philosophies with emphasis on legal positivism and natural law; nature of jurisprudence, relationship between law and morality, authority, normativity, institutional nature of law, political obligation. Same as 91:288.
144:205 Legal Reasoning arr.
Recent theories, philosophical underpinnings; recent philosophical work on theory construction, knowledge, language, objectivity, morality. Same as 91:317.
144:207 Modern Constitutional History arr.
Civil rights and civil liberties issues in American legal and cultural history from World War II to 1960. Pre- or corequisite: 91:252 or consent of instructor. Same as 91:667.
144:211 Native American Law I 3 s.h.
The specialized body of law allocating power and authority in Indian country; sovereignty arrangements, jurisdiction, federal Indian policy, tribal self-government. Consent of instructor required. Same as 91:319, 149:170.

PHILOSOPHY
Chair: Guenter Zoeller
Professors: Laird Addis, Panayot Butchvarov, Phillip Cummins, James Duerrlinger, Richard Fumerton, Guenter Zoeller
Associate professors: Evan Fales, Gregory Landini, David Stern
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 the following.
26:103 Introduction to Symbolic Logic 3 s.h.
26:111 Ancient Philosophy 3 s.h.
26:114 Seventeenth-Century Philosophy 3 s.h.
or
26:116 Eighteenth-Century Philosophy 3 s.h.
The final 12 semester hours of philosophy courses used to complete the departmental
Iowa.

undergraduate studies can provide more 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.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan.

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

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

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

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

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

Honors

The department administers an honors program for undergraduate students of superior ability. In order to be admitted to the honors program in philosophy, a student must be a member of the University Honors Program 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 an 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 can 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 grade-point average of at least 2.00. Of these, a minimum of 12 semester hours must be taken at The University of Iowa in Department of Philosophy courses numbered above 100. For information contact the director of undergraduate studies.

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

26:1 Problems of Moral 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 20th century. GE: 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 19th century. GE: historical perspectives.

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. GE: humanities.

26:102 Introduction to Ethics 3 s.h.
Analytical and historical introduction to ethical theories about issues such as the nature of goodness, the nature of right conduct. GE: humanities.

26:103 Introduction to Symbolic Logic 3 s.h.
Main ideas and basic techniques.

26:104 Introduction to Philosophy of Science 3 s.h.

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, major positions; Bacon and Descartes to Leibniz and Locke.

26:116 Eighteenth-Century Philosophy 3 s.h.
Main trends, central arguments, major positions; Berkeley to Kant.

26:117 Nineteenth-Century Philosophy 3 s.h.
Main trends and major figures.

26:118 Twentieth-Century Philosophy 3 s.h.

26:125 American Philosophy 3 s.h.
Important ideas including those of the three leading pragmatists, Peirce, James, Dewey.

26:131 Aesthetics 3 s.h.
Major problems in philosophy of the arts.

26:132 Introduction to Political Philosophy 3 s.h.

26:133 Philosophy of History 3 s.h.
Major problems.

26:134 Philosophy of Religion 3 s.h.

26:136 Philosophy of Literature 3 s.h.
Philosophical dimensions of literature and literary criticism. Same as 481.156.

26:138 Philosophical Problems of Artificial Intelligence 3 s.h.

26:141 Existentialist Philosophy 3 s.h.
Main ideas of existentialism; emphasis on Kierkegaard, Nietzsche, Heidegger, 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, major texts.

26:145 Buddhist Philosophy 3 s.h.
Introduction to main ideas.

26:148 Readings in Philosophy 3 s.h.
For honors students. May be repeated.

26:149 Undergraduate Seminar in Philosophy 3 s.h.
Selected problems. Consent of instructor required.

26:151 Topics in Ancient Philosophy 3 s.h.
A single ancient philosopher or philosophical problem. Consent of instructor required.

26:152 Plato 3 s.h.
Main ideas, major texts. Consent of instructor required.

26:153 Aristotle 3 s.h.
Main ideas, major texts. Consent of instructor required.

26:155 Aquinas, Scottus, Ockham 3 s.h.
Views of one or more of these; other important philosophers and general philosophical trends of the Middle Ages. Consent of instructor required.

26:158 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.
Main ideas, major texts. Consent of instructor required.

26:162 Locke 3 s.h.
Locke’s metaphysical and epistemological views in their historical context. Consent of instructor required.

26:163 Berkeley 3 s.h.
Immaterialism 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.
PHYSICAL EDUCATION SKILLS PROGRAM

Chair: Carolyn W. Lara-Braud

The Physical Education Skills Program offers courses that may be used to satisfy a portion of the General Education Program requirements of the College of Liberal Arts. These requirements are discussed in the College of Liberal Arts introductory section of the Catalog.

Students also may take these courses for elective credit.

The faculty members of this program are drawn from the Departments of Exercise Science and Sport, Health, Leisure, and Physical Studies.

Courses

28S:1 Physical Education Skills 1 s.h.

Basic and advanced instruction in student’s choice of team and individual sports and physical and recreational activities; emphasis on lifetime sports and activities. See current Schedule of Courses for skills sections offered. GE: physical education.

28S:2 Physical Education Skills 1 s.h.

See description under 28S:1. GE: physical education.

28S:5 Fitness and Wellness for Life 2 s.h.

Lecture material applied to the design of a personalized fitness/wellness program in discussion, laboratory sessions. GE: physical education.

PHYSICS AND ASTRONOMY

Chair: Gerald L. Payne


Undergraduate degrees: B.A., B.S. in Physics, Astronomy; minor in Physics, Astronomy.

Graduate 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 in selected specialties for individual scholarly work at an advanced level.

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 here.

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.

The following courses or their equivalents (total of 17-18 courses) are required for the Bachelor of Science with a major in physics. Students satisfy the requirements listed for either Group 1 or Group 2, as well as the “Other Required Courses.” The department encourages students to do additional work.

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 III 4 s.h.

Group 2

22M:35-36 Engineering Calculus I-II 8 s.h.
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.

PHYSICS AND ASTRONOMY
22M:41 Differential Equations for Engineers 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.

Other Required Courses
29:27-28 Physics I-II (students who completed 29:17-18 before August 1994 may use those courses instead) 8 s.h.
29:29-30 Physics III-IV 8 s.h.
29:115 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 of these:
29:117 Optics 3 s.h.
29:128 Electronics 4 s.h.
29:132 Intermediate Laboratory (third semester) 2 s.h.
29:171-172 Mathematical Methods of Physics 6 s.h.
29:180 Electromagnetic Foundations of Optics 3 s.h.
29:182 Electro-Optics 3 s.h.
29:184 Optical Signal Processing 3 s.h.
29:192 Elementary Particles and Nuclear Physics 3 s.h.
29:193 Introductory Solid State Physics 3 s.h.
29:194 Plasma Physics 3 s.h.
29:196 Fluid Mechanics 3 s.h.

An additional 5 semester hours of course work in another science or engineering field, including computer science but not mathematics.

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.

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 satisfy the requirements listed for either Group 1 or Group 2, as well as the “Other 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 III 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
29:27-28 Physics I-II (students who completed 29:17-18 before August 1994 may use those courses instead) 8 s.h.
29:29-30 Physics III-IV 8 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.
29:129-130 Electricity and Magnetism (requires Calculus III as prerequisite) 3 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.
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 count toward a single-major bachelor’s degree.

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 the field. 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 in 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.
29:27-28 Physics I-II (students who completed 29:17-18 before August 1994 may use those courses instead) 8 s.h.
29:29-30 Physics III-IV 8 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.
29:129 Electricity and Magnetism (requires Calculus III as prerequisite) 3 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.
or 29:194 Plasma Physics 3 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 introductory section of the Catalog.

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

**BA in Astronomy**
Before the third semester begins: math through calculus I and II, physics I and II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: physics III and IV, at least one more course in the major, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: nine courses in the major

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

**B.S. in Astronomy**
Before the third semester begins: calculus I and H, physics H, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through calculus III, physics III and IV, linear algebra, two other courses in the major, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: three more courses in the major

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

**BA and B.S. in Physics**
Before the third semester begins: calculus II, physics II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: physics 111 and IV, calculus III, linear algebra, up to two more courses in the major, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: two or three more courses in the major

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

**Honors**
Junior and senior 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 grade-point average of at least 2.00. Those 15 hours must include 12 semester hours taken at The University of Iowa, chosen from 29:29 (prerequisites: 29:27 and 29:28 or 29:17 and 29:18), 29:30, and any 100-level physics courses.

**Minor in Astronomy**
A minor in astronomy requires 15 semester hours of credit in astronomy and physics courses with a grade-point average of at least 2.00; 12 semester hours must be taken at The University of Iowa. The 15 semester hours must include 12 semester hours of upper-level course work and 6 semester hours chosen from the following:

- 29:119-120 Introduction to Astrophysics I-II
- 29:137 Astronomical Laboratory

The remaining course work may be chosen from any 100-level astronomy or physics courses.

**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. Students who wish to pursue a program in astronomy beyond the M.S. level may qualify for a Ph.D. in physics with specialization and a dissertation in astronomy or astrophysics. An M.S. is not prerequisite to the Ph.D.

The Department of Physics and Astronomy participates in an interdisciplinary doctoral program with the Program in Applied Mathematical Sciences (see the Graduate College section of the Catalog).

Each entering graduate student is assigned a faculty adviser, who assists in preparing a plan of study and in guiding the student’s progress. Graduate students who wish to pursue a Ph.D. in physics must pass a qualifying examination in all principal areas of physics at the level of first-year graduate work. The examination is given each year before the beginning of the first semester and normally is taken before the beginning of the second year. After a student has selected a research specialty, he or she must submit a formal thesis proposal and defend the proposal in an oral comprehensive exam. The appropriate thesis adviser then becomes the candidate’s general adviser and the chair of the comprehensive and final examination committee.

**Master of Science in Physics**
The M.S. in physics is offered with either thesis or critical essay. The degree may be terminal or an intermediate step toward a Ph.D. In either case, the final examination is oral, conducted by a committee of three members of the graduate faculty appointed by the dean of the Graduate College.

The program for the M.S. with thesis requires 30 semester hours of graduate work (100- or 200-level courses) and a thesis based on an original experimental or theoretical investigation by the candidate. No more than 6 of the minimum 30 semester hours may be earned for research (29:281 Research: Physics).

The program for the M.S. with critical essay requires 30 semester hours of graduate work (courses numbered 170 or above), an independent study of the literature on a chosen topic, and preparation of a critical essay on that topic. No more than 4 of the minimum 30 semester hours may be earned for the critical essay (29:220 Individual Critical Study). Up to one-third of the graduate program may be in related scientific fields other than physics and mathematics—for example, chemistry, astronomy, geology, or engineering.

Candidates for either of the M.S. programs must have satisfactorily completed the following courses or their equivalents as undergraduates or graduates:

- 29:115 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.
- 29:133 Advanced Laboratory (two semesters) 4 s.h.
- 29:140-141 Introduction to Quantum Mechanics I and II 6 s.h.
- 29:171-172 Mathematical Methods of Physics 6 s.h.

Two of these:
- 29:180 Electromagnetic Foundations of Optics 3 s.h.
- 29:182 Electro-Optics 3 s.h.
- 29:184 Optical Signal Processing 3 s.h.
- 29:192 Elementary Particles and Nuclear Physics 3 s.h.
- 29:193 Introductory Solid State Physics 3 s.h.
- 29:194-195 Plasma Physics 3 s.h.
- 29:196 Fluid Mechanics 3 s.h.

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
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, as well as a student computer cluster for which students can obtain accounts. National supercomputers are accessed via the 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, medical 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.

Experiments in nuclear physics, which study nuclear reactions by colliding heavy ions, are carried out at 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.

State-of-the-art laser systems are available for high resolution spectroscopic measurement and ultrafast pump-probe studies of molecular structure, for collisional relaxation and nonlinear 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 and instruction in observational astronomy. The primary optical instrument is a fully automated 7-inch refractor with a CCD camera and a variety of filters. This on-campus instrument is used for research projects as well as instructional laboratories at all levels. A 24-inch reflector at a remote site also is available. There is a 4.5 meter radio telescope on the roof of Van Allen Hall, which is used for instruction and student research projects.

Research programs in galactic and extragalactic radioastronomy are carried out using the facilities of the National Radio Astronomy Observatory, including the Very Large Array and the Very Long Baseline Array, one element of which is 10 miles north of campus. Current long-term research activities include studies of extragalactic radio sources, red giant stars, radiowave scattering in the interstellar and interplanetary media, 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.

The primary emphasis of Iowa's program in experimental and theoretical space physics is on studies of cosmic and heliospheric physics, magnetospheric physics, and magnetosphere-ionosphere interactions. Facilities are available for designing and constructing 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.


Physics - Primarily for Undergraduates

29:000 Cooperative Education 0 s.h.

29:4 Physical Science Concepts and Applications 4 s.h.

Basic principles of physics considered in context of natural phenomena and everyday applications; for conscience majors planning a career in education. Consent of instructor required.

29:5 Chemistry and Physics of the Environment 3 s.h.

Chemistry and physics of the earth: history of life, air, earth, water, and noise pollution; return of pollutants to man; chemistry and physics of the balance of nature; for conscience students.

29:8 Basic Physics 3 s.h.


29:9 Directions in Modern Physics 3 s.h.

Introduction to recent progress in experimental and theoretical physics; chaotic dynamical systems, onset of turbulence, space plasma, superconductivity, symmetries in particle physics, cosmology; emphasis on conceptual issues rather than problem-solving. GE: natural sciences, Prerequisites: high school algebra and trigonometry, and 22M:5 or equivalent.
Physics – for Undergraduates and Graduates

29:103 Reading in Physics
29:115 Intermediate Mechanics 3 s.h.
29:117 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:128 Electrons 4 s.h.
29:129 Electricity and Magnetism 3 s.h.
29:130 Electricity and Magnetism 3 s.h.

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 & 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. May be repeated. Prerequisites: 29:18 or 29:29; and 29:19 or 29:43. Corequisites: 29:13.5.

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.

29:140 Introduction to Quantum Mechanics I 3 s.h.
Superposition principle, Stern-Gerlach experiment, linear operators, measurement, theory, time evolution, angular momentum, wave mechanics in one dimension, one dimensional harmonic oscillator, two-body problems with central forces, the hydrogen atom. Prerequisites: 29:29 or 29:83; 29:115; and 22M:28 or 22M:40-42.

29:141 Introduction to Quantum Mechanics II 3 s.h.
Perturbation theory, variational methods, WKBJ approximation, scattering, Helium atom, periodic table, atomic spectroscopy, transition rates, other selected applications. Prerequisites: 29:140, and 22M:28 or 22M:40-42.

29:171 Mathematical Methods of Physics 3 s.h.
Functions of complex variables, integration methods, linear vector spaces, tensors, matrix algebra. Prerequisite: 22M:28 or 22M:40-42.

29:172 Mathematical Methods of Physics 3 s.h.
Continuation of 29:171, which is prerequisite; Hilbert 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; anisotropic crystal optics; electro-optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisite: 29:130 or equivalent. Same as 55:177.

29:182 Electo-Optics 3 s.h.
Propagation, nonlinear effects in bounded structures; optical birefringence; dielectric waveguides, fibers, electro-optic, acousto-optic modulation; optical detection, noise. Prerequisite: 29:130 or equivalent. Same as 55:179.

29:184 Optical Signal Processing 3 s.h.
Linear optics from perspective of Fourier analysis; impulse response, convolution, transfer functions, coherence, interference, interference, image formation, Gaussian beam propagation, holography, sampling theory, optical information and signal processing. Prerequisite: 29:130 or equivalent. Same as 55:178.

29:192 Elementary Particles and Nuclear Physics 3 s.h.
Accelerators, particle detectors, passage of radiation through matter; nuclear structure, nuclear reactions; quark model of hadrons; strong, electromagnetic, weak interactions of elementary particles; gauge theories, intermediate vector bosons; unification of electromagnetism and weak interactions. Prerequisite: 29:140.

29:193 Introductory Solid State Physics 3 s.h.
Phenomena associated with solid state; classification of solids and crystal structures, electronic and vibrational properties in solids; thermal, optical, magnetic, dielectric properties of solids. Prerequisites: 29:140 and 22M:28; or 22M:40, 22M:41, and 22M:42. Same as 55:173.

29:194 Plasma Physics 3 s.h.
Physics of ionized gases, including orbit theory, guiding center motion, adiabatic invariants, ionization balance description of plasmas by fluid variables and distribution functions; linearized wave motions, instabilities; magnetohydrodynamics. Prerequisite: 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, effects of finite viscosity, laminar and turbulent flows, onset and nature of turbulence. Prerequisites: 22M:28 or 22M:42, and 29:115 or equivalent.

29:205 Classical Mechanics 3 s.h.
Dynamics of mass points; Lagrange multipliers, small oscillations, Hamilton’s equations, canonical transformations, Hamilton Jacobi theory; chaos. Prerequisite: 29:115.

29:206 Nonlinear Dynamics 3 s.h.

29:211 Mechanics of Continua 3 s.h.
Hydrodynamics, dynamics of ideal fluids, both incompressible and compressible; viscous flow; classical theory of elasticity. Prerequisite: 29:205.

29:212 Statistical Mechanics 3 s.h.
Probability concepts, kinetic equations; classical and quantum equilibrium statistical mechanics with applications, including ideal and imperfect gases and phase transitions, irreversible processes, fluctuation-dissipation theorems. Prerequisites: 29:118 and 29:140.

29:213 Classical Electrodynamics 3 s.h.
Advanced electrodynamics, boundary value problems, Green’s functions, Maxwell’s equations, radiation theory, physical optics, multiple expansion of radiation field. Prerequisite: 29:130.

29:214 Classical Electrodynamics 3 s.h.
Special relativity, motion of charges in fields, theories of radiation reaction, special topics. Prerequisite: 29:213.

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 and third-order optical nonlinearities, phase matching, harmonic generation, three- and four-wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: 29:130 or equivalent. Same as 55:272.

29:224 Laser Principles 3 s.h.
Laser theory, stimulated emission, dispersion theory, broadening mechanisms, rate equations, gain saturation, optical resonators, mode-locking, Q-switching techniques, survey of laser types, modes of operation. Prerequisite: 29:130 or equivalent. Same as 55:274.

29:226 Quantum Electronics 3 s.h.

29:228 Topics in Quantum Electronics 3 s.h.
Quantum optics, optical properties of matter, laser science, photonics, Consent of instructor required.

29:229 Semiconductor Physics 3 s.h.
Electronic, optical, and materials properties of semiconductors. Prerequisites: 29:193 and 29:246.

29:240 Medical Physics 4 s.h.
Interactions of radiation with matter, sources of radiation, dosimetry, applications of radiation and radioactivity in medicine. Prerequisites: 29:83 or calculus or consent of instructor. Same as 55:211.

29:245 Quantum Mechanics I 3 s.h.
Nonrelativistic quantum mechanics, Schroedinger wave mechanics, Hilbert space methods, perturbation theory, scattering, spin and angular momentum, identical particles, selected applications, introduction to relativistic theory. Prerequisites: 29:140 and 29:141.

29:246 Quantum Mechanics II 3 s.h.
Continuation of 29:245, which is prerequisite.

29:247 Introduction to Quantum Field Theory 3 s.h.
Quantization of relativistic and nonrelativistic field theories, covariant perturbation theory, theory of symmetry, dimensional regularization, renormalization group theory, introduction to gauge theories and anomalies. Prerequisite: 29:246.
Astronomy – Primarily for Undergraduates

29:50 Modern Astronomy
Survey non-scientific majors topics from visible phenomena in the sky to the 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 physics or astronomy majors. GE: natural sciences.

29:51 Introductory Astronomy Laboratory
Laboratory for 29:50. Prerequisite: 3 semester hours in 29:50 or equivalent. GE: natural sciences.

29:52 Characteristics and Origins of the Solar System
Well-defined topics in solar system astronomy, such as celestial mechanics, structure and energy source of sun, production of craters on moon and other solar system objects, formation of solar system, properties of planetary atmospheres including human modification of Earth’s atmosphere, astronomical perspectives on origin of life; for nonmajors. GE: natural sciences.

29:61 General Astronomy
Qualitative and quantitative introduction to the development of astronomy, celestial mechanics, time, electromagnetic radiation, telescopes and astronomical instrumentation, planets, smaller solar system objects; laboratory emphasis on observation with telescopes. Closely to students who have taken 29:39, except with consent of instructor. GE: natural sciences. Prerequisite: four years of high school math or consent of instructor.

29:62 General Astronomy
Qualitative and quantitative introduction to properties and evolution of sun, stars, interstellar matter, galaxies; cosmology; laboratory emphasis on observation with telescopes. Closely to students who have taken 29:39, except with consent of instructor. GE: natural sciences. Prerequisite: four years of high school math or consent of instructor.

29:94 Reading in Astronomy

Astronomy – for Undergraduates and Graduates

29:104 Reading in Astronomy

29:119 Introduction to Astrophysics I
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 kinetics, stellar evolution, HII regions, radiation processes in galaxies and quasars, stochastic processes in astrophysics. Prerequisites: 29:19 or 29:28, 29:62, and 22M:26 or 22M:36. Recommended: computer programming experience.

29:120 Introduction to Astrophysics II
Continuation of 29:119. Prerequisites: 29:29, and 22M:26 or 22M:36.

29:137 Astronomical Laboratory
Techniques and instrumentation in optical and radioastronomy. May be repeated. Prerequisite: 29:62 or consent of instructor.

Astronomy - Primarily for Graduates

29:222 Theoretical Astrophysics I
Radiative transfer, theory of stellar photosphere and continuous spectra of stars, formation of absorption lines in spectra of stars. Consent of instructor required.

29:233 Theoretical Astrophysics II
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
Structure of stellar interiors; nucleosynthesis in stars and evolution of stars. Consent of instructor required.

29:235 Special Topics in Astrophysics
Advanced topics. May be repeated.

29:263 Seminar: Astrophysics
Current research.
Students who declared the B.S. after August 21, 1995, must complete the new requirements.

Course distribution, residence rules, and grade-point average requirements for the B.S. degree are the same as those for the B.A. degree. The B.S. requires the following courses in addition to those required for the B.A.

30:100 Understanding Political Research 3 s.h.
30:193 Undergraduate Research Tutorial (honors students may substitute 30:185 with B.S. adviser’s consent) 3 s.h.
Three mathematics or statistics courses chosen from the following list 10-11 s.h.
30:194 Senior Research Project/Paper (recommended but not required) 3 s.h.

Credit for 30:191 Government Internship and 30:192 Washington Internship cannot be applied to the major.

APPROVED MATH/STATISTICS COURSES

The following sets of mathematics/statistics courses are approved for the B.S. Other sets of courses may be used with written approval of the B.S. adviser.

22M:17 Quantitative Methods I (22M:21, 22M:25, 22M:35, or 22M:45 can be substituted) 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 4 s.h.
22S:8 Quantitative Methods II 4 s.h.
6K:71 Statistical Analysis (6E:85 can be substituted) 3 s.h.
22M:25 Calculus I (22M:22, 22M:36, or 22M:45 can be substituted) 4 s.h.
22M:26 Calculus II (22M:22, 22M:36, or 22M:46 can be substituted) 4 s.h.
22S:102 (7P: 143) Introduction to Statistical Methods 3 s.h.

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.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

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

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

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

Before the eighth semester begins: eight courses in the major

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

Bachelor of Science

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

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

Before the seventh semester: eight courses in the major, including two of the three required mathematics/statistics courses and 30:100, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 11 courses in the major, including 30:193 and all courses listed above it

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

Bachelor’s Degrees with Honors

In addition to the checkpoints for the B.A. and B.S. degrees, honors candidates must complete 30:180 before the seventh semester begins.

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 at least 3.20 overall and in political science. To graduate with honors, students must maintain a grade-point average of at least 3.50 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, 30:183 Honors Seminar on Comparative Politics, or 30:184 Honors Seminar on International Politics. The last 2 semester hours required for graduation with honors in political science may be earned by completing 30:185 Honors Research Project or 30:186 Honors Senior Thesis. 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).

For a detailed description of the undergraduate program in political science, see Guide to Undergraduate Study in Political Science. Also available is the brochure Careers and the Study of Political Science: A Guide for Undergraduates.

Graduate Programs

For students planning academic careers, the department has a program leading to a Doctor of Philosophy in political science. The department usually offers the master’s degree only as a preliminary step toward the Ph.D.

Master of Arts

without 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. If the examination committee convened at the end of the student’s first year of courses finds that a student’s work provides sufficient evidence of the research and writing skills ordinarily demonstrated in a master’s thesis, it may recommend that the student be allowed to proceed with a doctoral program.

When a first-year evaluation committee finds the quality of a student’s work inadequate for recommending continuation toward the Ph.D., the committee may recommend that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy

The 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 10 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 to five years. The first-year curriculum for all students consists of core courses equally divided between substance and methodology. Emphasis is on basic research methods—including quantitative methods—that 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 and fifth years are spent on dissertation research and writing. Students who do basic research and gather data abroad often require an additional year to complete the dissertation.

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 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.

*Courses 30:191 and 30:192 do not count toward the major in political science. Both are offered only satisfactory/fail.

30:000 Cooperative Education Training Assignment 0 s.h.

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. GE: social sciences.

30:10 Intro to Political Thought and Political Action 3 s.h.
Common problems, literature, analytic techniques. GE: social sciences or humanities.

30:10 Introduction to the Politics of the Industrial Democracies 3 s.h.
Western Europe and Asian systems of government compared; emphasis on similarities and differences between political parties, interest groups, legislative and executive institutions, policy-making processes, patterns of voting behavior and citizen participation. GE: social sciences.

30:11 Introduction to the Politics of Russia, Eastern Europe, and Eurasia 3 s.h.
Political change in Russia, Eastern Europe, and Eurasia: historical factors, institutional change, current problems. GE: social sciences.

30:12 Introduction to the Politics of Developing Areas 3 s.h.
Political systems of underdeveloped countries in Africa, Asia, Latin America; their development; how they interact with other developing countries and with developed countries. GE: social sciences.

30:13 Introduction to Political Behavior 3 s.h.
Patterns and bases of political behavior; emphasis on common elements across social, organizational, institutional settings. GE: 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. GE: 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 policies. GE: social sciences.

30:70 Introduction to Political Communication 3 s.h.
Institutions, dynamics, issues of political communities considered as networks of communication; representative theories include political actors, ads, films, media, myths, news, publics, regulations, rhetoric, symbols. GE: 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.

30:110 The American Political System 3 s.h.
Political behavior of American individuals and groups; institutional structure of political system. Closed to students who have received credit for 30:1.

30:111 Municipal Government and Politics 3 s.h.
Models of city government, relation to state and federal governments; rights, liabilities of municipalities; city elections, campaigns, issues, role of pressure groups.

30:113 American State Politics 3 s.h.
Approaches to analysis of political behavior in American states and governments: emphasis on cultures, parties, actors, processes, issues.

30:114 Political Parties 3 s.h.
Structure, functions of parties in American politics; effects of economic and political reform; use of various models of parties, partisanship to understand these changes.

30:115 The Presidency 3 s.h.
Development, current status of the office; powers, functions of American presidency; recruitment, multiple roles of chief executive; party, congressional, administrative, judicial relationships.

30:116 American Constitutional Law and Politics 3 s.h.
Role of U.S. Supreme Court in American political system; emphasis on analysis of Supreme Court cases.

30:117 The Politics of Civil Rights and Liberties 3 s.h.
Civil rights and liberties of U.S. citizens; legislative statutes, administrative regulations, judicial decisions.

30:118 Law and Social Change 3 s.h.
How law is used to constrain and promote social change; conditions that make law effective or ineffective.

30:119 Problems in American Politics 3 s.h.
Problems in studying American system; structures, functions, behavior. May be repeated with consent of instructor.

30:120 Public Administration and Bureaucratic Politics 3 s.h.
Administrative and organizational theory and behavior; techniques of management; relations between administration and other branches in federal and state governments; administrative effectiveness.

30:121 Urban Administration 3 s.h.
Problems, principles of urban administration; tax problems, personnel matters, budgeting, planning, functional operations of city administrations — service, fire, public health, recreation, social welfare services, education.

30:122 Government Regulation of Business 3 s.h.
Regulation in the United States; theoretical and historical development of economic and social regulation; recent regulatory reforms and deregulation; focus on how Congress, the president, courts affect regulatory agencies.

30:123 Politics and American Economy 3 s.h.
Interaction between politics and the economy; how political factors influence economic policy making; their impact on unemployment, inflation, output growth; potential impact of economic voting on aggregate economic performance. Prerequisite: 30:122 or 30:15.

30:124 Executive-Legislative Relations 3 s.h.
Conflict, cooperation between executive and legislative branches of U.S. government; budget politics, legislative veto, foreign policy.

30:125 Interest Groups 3 s.h.
Theory, organization, structure of interest groups; how they influence Congress, executive branch, courts, elections.

30:126 American Public Policies 3 s.h.
Functions and policies of national government; emphasis on domestic policy making, impact of public policy. Prerequisite: 30:1.

30:133 Postmodern Political Theory 3 s.h.
Major trends and intellectual trends, from 19th century to World War II.

30:135 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.

30:136 Game Theory for Political Scientists 3 s.h.
Use of game theory in political science: utility theory; classical game theory; solutions concepts such as Nash equilibrium, subgame perfection, sequential equilibrium; games of imperfect and complete information, signaling games; repeated games.

30:138 Current Political Theory 3 s.h.
Thinkers or schools of thought, from World War 11 to present. May be repeated with consent of instructor.

30:139 Political Issues 3 s.h.
Representative topics include democracy, revolution, justice, obligation, technology, authority. May be repeated.

30:140 Government and Politics of Western Europe 3 s.h.
Political institutions, processes of selected Western European countries. GE: social sciences. Prerequisite: 30:40.

30:141 Russian and Soviet Political Systems 3 s.h.
How Soviet political system developed and functioned 1917-1985; transformations leading to 1991 break-up; emerging forms of government, politics in former Soviet republics. GE: foreign civilization and culture. Prerequisite: 30:41 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. GE: 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. GE: foreign civilization and culture.

30:145 Major States of Latin America 3 s.h.
Comparative political systems; historical background with emphasis on contemporary political scene. GE: foreign civilization and culture.

30:146 African Development 3 s.h.
Problems of economic, political, spatial integration in Africa; patterns, processes of economic development and nation building. GE: foreign civilization and culture or social sciences. Same as 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 41:51.

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. GE: foreign civilization and culture. Same as 141:148.

30:149 Problems in Comparative Politics 3 s.h.
Structures, functions, behavior of different political systems. May be repeated with consent of instructor.

30:150 Political Economy Developing Countries 3 s.h.
Political and economic change and public policy in less developed countries (LDC) and newly industrialized countries (NIC) in Africa, Asia, Latin America.

30:151 Political Leadership 3 s.h.
Foundations, effects of leadership in different political systems.

30:152 The Legislative Process 3 s.h.
Comparative legislative processes, behavior; focus on legislative systems analysis, legislative institutionalization, legislature and its environment, organizational constraints on legislative behavior, recruitment of legislators, web of legislative interactions, legislative voting behavior. 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 behaviors of individuals, including decision making by elites and masses, evaluations of political candidates, mass mobilization, response to mass media; psychological concepts including stereotyping, social cognition, attitude, group identification.

30:156 Politics of Ethnic and Cultural Conflict 3 s.h.
Origins, nature, political consequences of communal cleavage and conflict in selected contemporary societies and international settings.

30:157 Voting Behavior and Elections 3 s.h.
Determinants of voting behavior; correlates of political participation, political apathy; political socialization processes; nature and functions of elections.

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 economy.

30:162 American Foreign Policies 3 s.h.
Ends pursued, problems encountered, means employed by the United States in relations with other states and international organizations. Prerequisite: 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.

30:168 Russian Foreign Policy 3 s.h.
International politics between former USSR or Eastern European states and between them and other states; sources of foreign policy goals, strategies, similarities, differences between these states’ objectives, strategies, capabilities. Prerequisite: 30:66.

30:169 Problems of International Politics 3 s.h.
May be repeated.

30:170 The Politics of International Economies 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 with interviewing and conducting public opinion research. Same as 34:153.

30:172 Political Communication and Cognition 3 s.h.
Representative topical structures; processes of political thinking and talking, especially in electronic societies; ads, experts, hearings, ideologies, media, news, publics, schemas, speeches, symbols.

30:173 Introduction to Public International Law 3 s.h.
Principle of law that determines rights and duties of nations in their dealings with each other; contemporary international problems, controversies. Same as 47:195, 91:195.

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 of women judges, lawyers, legal scholars. Same as 131:180.

30:175 Comparative Law 3 s.h.
Relationship between law and politics in British House of Lords, U.S. Supreme Court, Court of Justice of the European Community; institutions, processes, comparative methods.

30:176 French Politics and Society 3 s.h.
Modern French history, politics, society, geography, culture.

30:177 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 or senior standing required. Same as 47:193, 91:193.

30:178 Politics of the Canadian Federation 3 s.h.
Effect of Canada’s history, culture, and political institutions on its political conflicts; stability, change, and the future; U.S. role in Canadian politics.

30:179 Transitions to Democracy 3 s.h.
Comparative examination of transitions from authoritarian rule to democracy in eastern and southern Europe, Latin America, Asia, Africa. Prerequisite: 30:1 or 30:30 or 30:40 or 30:41 or 30:42 or 30:50 or 30:60 or 30:61 or 30:70.

30:180 Honors Seminar on the Study of Politics 3 s.h.
History, scope, methods; diverse issues, theories, techniques in systematic study. Political science honors standing or consent of instructor required.

30:181 Honors Seminar on American Politics 3 s.h.
Ideas, issues, methods in selected area. Junior or senior honors standing in political science or consent of instructor required. May be repeated.

30:183 Honors Seminar on Comparative Politics 3 s.h.
Ideas, issues, methods in selected area. Junior or senior honors standing in political science or consent of instructor required. May be repeated.

30:184 Honors Seminar on International Politics 3 s.h.
Ideas, issues, methods in selected area. Junior or senior honors standing in political science or consent of instructor required. May be repeated.

30:185 Honors Research Project 3 s.h.
Special research assistance to political science faculty. Junior or senior honors standing in political science and 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.

4*: 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.

30:193 Undergraduate Research Tutorial 3 s.h.
Individual training in applied research. Consent of supervising faculty member required.

30:194 Senior Research Project/Paper 3 s.h.
Supervised research and writing. Open only to political science students not in their last semester of course work before graduation. 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; empirical research strategies, quantitative techniques. Doctoral standing in political science or consent of instructor required.

30:201 Introductory Methodology 3 s.h.
Observational methods, data analysis, critical analysis of applied social research. Doctoral standing in political science or consent of instructor required.

30:202 Computing in Political Science 1 s.h.
Work on large and small computer systems. Doctoral standing in political science or consent of instructor required.

30:203 The Writing of Political Science 2 s.h.
Instruction, practice in writing; focus on style, critical thinking; use of graphics. Doctoral standing in political science or consent of instructor required.

30:204 Computational Methods 3 s.h.
Methods for political analysis; calculus, matrix algebra, set theory. Doctoral standing in political science or consent of instructor required.

30:205 Introduction to Positive Political Theory 3-4 s.h.
Formal analysis of political decision making; microeconomic foundations of collective choice problems, spatial models, voting mechanisms.

30:206 International Politics 3-4 s.h.
Approaches to study of international politics. Doctoral standing in political science or consent of instructor required.

30:300 Philosophy of Political Inquiry 3-4 s.h.
Purposes, methods in study of politics.

30:301 Intermediate Methodology 3-4 s.h.
Techniques of data analysis; statistical models and their relationship to hypotheses tested. Doctoral standing in political science required. Prerequisite: one semester of intermediate statistics.

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, CLS, IV, ML estimation; emphasis on interpretation, application in political science.

30:304 Experimental Methods 4 s.h.
Methods, techniques used in political science experiments.

30:310 Applications of Formal Models to American Politics 4 s.h.
Exploration of how well formal models explain the real world and how the fit between models and world can be improved.

30:314 Political Parties 3-4 s.h.
Roles, organization, composition, leadership, functions of parties in American or other political systems.

30:315 The Presidency 3 s.h.
American chief executive: history, recruitment, behavior, role responsibilities, powers, relationships with other institutions.

30:319 Problems in American Politics 3-4 s.h.
Problems in study of American political system; structures, functions, behavior. May be repeated.

30:337 Game-Theoretic Models of Collective Choice 4 s.h.
Techniques for analyzing game-theoretic models of political science literature; distributive and informational models of legislative decision-making.

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 Democracy and Democratization 4 s.h.
Competing conceptions of democratic governance and competing theoretical frameworks for the study of successful or attempted regime change from authoritarian rule towards democracy; emphasis on reading and critically analyzing diverse approaches.

30:342 Nationalism: Theory and Practice 4 s.h.
Theories of nationalism and nature of ethnicity; national identities in modern society; nationalism, rise and fall of nation states; constitutional mechanisms for reducing ethnic-based political and violent conflict.

30:343 Asian Political Systems 3 s.h.
Democracy, transitional, and 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. Maybe repeated.

30:350 Political Economy and Public Policy in Developing Countries 3 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.
Undergraduate Programs

The department offers the Bachelor of Arts and the Bachelor of Science in Psychology. Both programs are designed to contribute to students’ general liberal education and to provide a foundation for postbaccalaureate training in psychology and closely related disciplines, and in areas such as business, medicine, law, and communications. Students who intend to enter the job market immediately after completing an undergraduate degree are well-advised to complement their psychology major with substantial preparation in another program more closely tied to the world of work (e.g., education, social work, business, journalism, nursing). Almost all vocational opportunities in psychology require advanced degrees.

The B.S. program is intended for students who plan to pursue advanced work in psychology or in a related discipline. It includes an admission grade-point average requirement and 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 enrich 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: behavioral and cognitive neuroscience, developmental psychology, clinical psychology, human experimental psychology, and personality 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 Psychology 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.

Undergraduate psychology students may use Saturday & Evening classes and/or Guided Correspondence Study to meet B.A. and B.S. program requirements. However, they also must satisfy all requirements of the College of Liberal Arts concerning the use of correspondence credit within the degree.

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 are admitted to the B.A. program until they satisfy the admission requirements for the B.S. program. New transfer students who meet the admission requirements for the B.S. program may choose to enter the B.S. or the B.A. program. Any student in the B.A. program may switch to the B.S. program if he or she meets admission requirements at the time of the request. Students may switch from the B.S. to the B.A. program at any time.

Bachelor of Arts

The B.A. program is designed for students who wish to gain considerable knowledge in psychology but do not necessarily plan a professional career in the discipline. The program is appropriate for students preparing for careers in law, business, technical writing, or secondary school teaching (see the College of Education section of the Catalog for social science teaching certification requirements). 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 College of Liberal Arts requirements for the B.A. and must complete at least 25 semester hours in psychology plus a 3-semester-hour statistics course. Students also must complete at least 9 semester hours of course work at The University of Iowa in a second area of concentration. Courses used to satisfy the College of Liberal Arts General Education Program 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 their equivalents.

31:1 Elementary Psychology 3-4 s.h.
31:3 General Psychology 4 s.h.
At least two of the six electives must be dictated by the psychology and related fields. However, choice entails at least one pre-calculus mathematics course, which may require some preliminary work.

Bachelor of Science

The B.S. program is designed to be more rigorous than the B.A. program. Accordingly, the B.S. may be the degree of choice for students who plan to do graduate work in psychology and related fields. However, choice of a degree program should be dictated by the student’s personal career goals, and a B.S. is not required for graduate study in psychology.

Students must satisfy the College of Liberal Arts requirements for the B.S. and must complete at least 28 semester hours of credit in psychology. Transfer students must complete at least 15 semester hours of the major at The University of Iowa.

The B.S. program must include the following courses or their equivalents.

- 31:1 Elementary Psychology (preferred) 3-4 s.h.
- 31:3 General Psychology 4 s.h.
- 7P:143 (22S:102) Introduction to Statistical Methods (or its approved substitute, 6K:71 Statistical Analysis) 3 s.h.
- 31:120-121 Experimental Psychology I-II 7 s.h.

One elective from each of the five groups listed under “Area Electives” 15 s.h.

At least one additional elective (excluding 31:185, 31:191, 31:195, and 31:199) 3 s.h.

At least four of the six electives must be 100-level courses.

Candidates for the B.S. in psychology are required to complete one of the following pairs of natural science courses: one semester each of chemistry and biology sciences; two semesters of chemistry; two semesters of physics; or one semester each of chemistry and physics. All of these combinations satisfy the General Education Program requirements in natural sciences. 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.

Students also must complete at least one additional course in advanced mathematics, statistics, or computer science chosen from the following list.

### Mathematics

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:22 Calculus and Modeling II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:26 Calculus II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:27 Introduction to Linear Algebra</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:36 Engineering Calculus II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:46 Accelerated Calculus II</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

### Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6K:71 Statistical Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:120 Probability and Statistics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22S:148 Intermediate Statistical Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><strong>Computer Science</strong></td>
<td></td>
</tr>
<tr>
<td>6K:70 Computer Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:5 Problem Solving and Computing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:7 Introduction to Computing with FORTRAN</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:10 Programming with C</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:12 Programming in C++</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:16 Introduction to Programming</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

Before the eighth semester begins: the advanced math/statistics/computer course and two more courses in the major, including 31:120

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

### Honors

The department has an active honors program open to majors with a grade-point average of at least 3.30 in psychology courses and at least 3.20 overall. The program includes research seminars and individual research collaboration with faculty members. Students usually are chosen to participate in the department’s 31:195 Honors Seminar in Psychology during the spring semester of their sophomore or junior year. Interested majors should contact the department honors adviser.

### 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 grade-point average of at least 2.00. At least 12 of those 15 semester hours must be in upper-level courses in the psychology department; this includes all 100-level courses and 31:43 Evaluating Psychological Research.

### Area Electives

Area offerings vary somewhat from semester to semester. Prior to each registration period, students should check the latest version of the 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 substitute, 6K:71 Statistical Analysis. Other statistics options are available to non-psychology majors.

*Courses marked with an asterisk maybe counted in either-but not both—of the areas indicated.

### Behavioral and Cognitive Neuroscience

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>31:32 Fundamentals of Behavioral Neuroscience</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:17 Introduction to Comparative Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:117 Psychology of Prenatal Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:123 Psychology of Learning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:126 Behavioral Neuroscience</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:128 Introduction to Behavioral Pharmacology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:132 Biopsychology of Motivated Behaviors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:133 Fundamentals of Sensation and Perception</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
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 areas: behavioral and cognitive neuroscience, clinical psychology, developmental psychology, human experimental psychology, and personality and social psychology. Each entering student is expected to identify one of these as his or her primary area and to follow a program that develops thorough understanding of the substantive material and methods of investigation central to that subdiscipline. While pursuing specialty training, all students must meet course requirements in statistics and research methods and in content areas other than their primary one.

The 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. A joint program involves course work in two areas, and research supervision by faculty members from both areas. The department also has prepared students to develop additional expertise in any of the following interest areas: human factors, aging, organizational and consumer behavior, communications, and cognitive science.

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 the psychology department. All students must satisfy, through one of several options, requirements in statistics and research methods. They 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 two semesters, graduate students ordinarily take three courses: for example, a statistics course, a course in the primary training area, and an outside area elective. Students also begin their research under the supervision of the adviser and with the guidance of their research advisory committee.

Near the end of the fall semester of the second year, students submit a report describing their research to date. At the beginning of the following semester, they present their research at the annual graduate research symposium. Advancement to Ph.D. candidacy is based on a review of the student’s overall record, with particular emphasis on their research activity and performance.

During subsequent years, students continue selected course work in their training and interest areas and continue to develop their research programs. In addition, they develop a prospectus for the dissertation research and take the comprehensive examination, which covers material in the specialty and related areas. The final year is devoted primarily to conducting the Ph.D. study and preparing the dissertation. In the Ph.D. final examination, students present an oral defense of their dissertation and are expected to relate the dissertation work to broader issues in the discipline of psychology.

Master of Arts with Thesis

As indicated above, the department does not offer a specific M.A. program. The M.A. with thesis requires satisfactory completion of at least 30 semester hours of graduate course work in psychology, 24 of which must be taken at The University of Iowa. The course work must include a statistics course and courses 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 requires satisfactory completion of at least 37 semester hours of graduate credit in psychology, 30 of which must be taken at The University of Iowa. The course work must include a statistics course and courses outside the primary area. Students also must perform successfully on a written examination covering their area of specialization.

Graduate Training Areas

Behavioral and Cognitive Neuroscience

The program in behavioral and cognitive neuroscience focuses on the analysis of attention, motivation, and learning, primarily in nonhuman subjects, through the application of behavioral and biological principles. Special faculty strengths are in classical and operant conditioning, motivation and emotion, developmental psychobiology, comparative psychology, cognitive neuroscience, neuropharmacology, neuroendocrinology, and neuroanatomy. Students in this program have the opportunity to learn state-of-the-art techniques in computer-controlled experimentation and electronic instrumentation as well as advanced analytic and laboratory methods in neurosurgery, histology, and biochemical assay.
Faculty members in the behavioral and cognitive neuroscience area interact extensively with colleagues from a number of basic science and clinical departments in the College of Medicine, including anatomy, anesthesia, pharmacology, internal medicine, pediatrics, and neurology. These collaborative activities provide excellent research and training opportunities for students interested in emerging interdisciplinary fields such as behavioral medicine.

Clinical Psychology
The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific approach to the study of psychopathology. It is designed for students who are interested primarily 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, 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 who have 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 follows the completion of all course work and, if not all, of the dissertation project.

Developmental 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 work 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; spatial cognition; mathematical psychology, psychophysical scaling, and signal detection theory; cognitive effects of drugs; human judgment and decision making; categorization; attention; 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 factor; mathematical psychology; visual perception; and psychoacoustics.

Personality and Social Psychology
The personality and social psychology program offers a variety of perspectives on interpersonal and intrapersonal processes. Students develop a broad familiarity with all of the major subareas but may focus their graduate training in any one, such as attribution, social influences on behavior, close relationships, health and stress, the social psychology of groups, temperament and emotionality, and traits and individual differences.

Students in the personality and social psychology program also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communications, human factors, and behavioral medicine. Such preparation, which ordinarily involves participation in special research projects and selected course work outside the department (e.g., in the College of Business Administration or the Department of Communication Studies), 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 in good standing in another U.I. graduate program who is interested in advanced work in psychology only through the M.A. level may be admitted to pursue a joint graduate program. Students interested in such a program should contact the department chair before filing an application.

The deadline for applications is January 15. 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 maybe submitted at any time but are considered only once each year—between January 15 and February 15—for admission the following fall. Admission decisions are based on a composite consideration of prior academic and research performance, letters of reference, scores on the verbal, quantitative, and analytic sections of the GRE General Test, and the applicant’s statement about background and purpose. Admission materials are initially reviewed 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.

Students who have completed substantial graduate work at another institution before being admitted to The University of Iowa’s psychology program are expected to present documents 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 degree at another institution while they are regular full-time students in the graduate program at The University of Iowa.

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 numerous 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 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.

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 chair required. May be repeated.

31:1 Elementary Psychology

3-4 s.h.
Psychology as a behavioral science, GE: social sciences.

31:3 General Psychology

4 s.h.
Introduction to psychology as an experimental science; focus on methods of investigation in psychology, GE: social sciences. Consent of instructor required. Prerequisite: high school preparation in mathematics and science.

31:12 Fundamentals of Behavioral Neuroscience

3 s.h.
Biological basis 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.
Scientific methods, theory, training, ethics, research methods in clinical psychology; current approaches to intellectual, diagnostic, personality, behavioral assessment; theories, research on treatment of psychological disorder, GE: 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, thinking (Piaget), information processing, memory and concept development, intelligence, child rearing, peers, sex differences, moral development, aggression, child psychopathology, GE: social sciences.

31:15 Introduction to Social Psychology

3 s.h.
Research related to behavior of individual human organisms to factors in social environment; socialization and acculturation, attitude development and change, attributional processes, social influences on perception, judgment, and behavior, social interactions, close relationships; contributions by sociologists and anthropologists.

31:16 Introduction to Cognitive Psychology

3 s.h.
Individual human cognition; perception, attention, memory, language, learning, problem solving, decision making, thought considered from viewpoint of information processing, GE: social sciences.

31:17 Introduction to Comparative Psychology

3 s.h.
Behavioral processes in visual, auditory, memory, attention, language, consciousness; behaviorism, mentalism, evolution, neuropsychology: GE: social sciences.

31:19 Psychology in Business and Industry

3 s.h.
Applicants of psychology to problems in world of work; emphasis on personnel selection, training, attitudes, motivation, measurement of job performance.

31:43 Evacuating Psychological Research

4 s.h.
Skills for critical evaluation of professional and public literature dealing with scientific study of behavior; philosophy of scientific psychology, experimental and noneperimental methods of investigation, principles of experimental design and control, psychological testing, discussion of applications in several areas of research. Prerequisite: an approved statistics course.

For Undergraduates and Graduates

An approved psychology course – 7P:25, 22S:25, 7P:143, 22S:102, 6K:71, 22S:8, 34:10, or equivalent is prerequisite to all 100-level psychology courses. Exceptions are 31:120 and 31:121, which have different prerequisites.

31:1 or 31:3 or equivalent is prerequisite to all other psychology courses. Only one of these may be taken for credit.

31:102 Interpersonal Influence

3 s.h.
Classic and contemporary theory and research on social influences of behavior; topics include social influences on self concept, interpersonal comparisons, obedience, conformity.

31:103 Social and Personality Development

3 s.h.
Emotional, social, and personality development from infancy to adolescence; child’s temperament characteristics, parent-child relationship, and social context as contributors to growth.

31:105 Personality

3 s.h.
Classic theoretical models and contemporary empirical research in personality, including influence of heredity and environment, consistency and stability of behavior.

31:106 Attitude Change

3 s.h.
Current theoretical approaches; laboratory and field methods of research; basic processes of change considered within broader framework of psychology.

31:107 Environmental Stress

3 s.h.
Social psychological aspects of urban living, crowding, control, institutionalization, energy utilization; theory and research on stress, arousal, emotion.

31:108 Small Group Processes

3 s.h.
Classic work on group dynamics, leadership, influence processes, group behavior, response to group pressure, selected social psychological problems; related topics in cognition.

31:109 Psychology of Aggression

3 s.h.
Major theoretical issues, research on aggressive behavior in human and nonhuman subjects; implications of research on aggression for understanding contemporary social problems.

31:112 Research in Nonverbal Communication

3 s.h.
Recent developments, issues concerning interaction process; facial expressions, tone of voice regulation, deception, visual behavior, dominance.

31:113 Language Processing

3 s.h.
Basic linguistic processes within context of cognitive psychology; speech perception, syntax, semantics, additional treatment of language acquisition. Same as 103:115.

31:114 Cognitive Development of Children

3 s.h.
Developmental research, theory concerning children’s concepts, thinking, problem solving, memory, communication.

31:115 Theories of Developmental Psychology

3 s.h.
Major theoretical approaches to study of developmental change (e.g., social learning, information-processing, ethological, contextual); related topics such as perceptual development and attachment.

31:116 Psychology of Gender

3 s.h.
Origins of gender roles, gender socialization in childhood, gender differences across lifespan; research on gender differences in cognition, emotion, behavior, physical and mental disorders, communication.

31:117 Psychology of Preparental Development

3 s.h.
Behavior before and immediately after birth; embryology and development of fetus, preterm infant, and neonate; motor development, sensation, learning, adaptation to intrauterine conditions.

31:118 Infant Development

3 s.h.
Cognitive and social development during first two years of life; development of perceptual abilities, early language acquisition, imitation, mother-infant attachment, temperament.

31:119 Memory and Cognition

3 s.h.
Introduction to contemporary psychological theory and research on short-term and long-term memory, acquisition processes, related topics in cognition.

31:120 Experimental Psychology I

3 s.h.
Logic and application of experimental methods to analysis of behavioral phenomena; major problem areas of experimental psychology. Prerequisite: 7P:143 or 22S:102 or equivalent.

31:121 Experimental Psychology II

4 s.h.
Laboratory study of an aspect of behavior; topics in a particular area (e.g., learning and memory, perception, social behavior, operant behavior, physiological processes). May be repeated. Prerequisite: 31:120 or equivalent; some sections may require additional prerequisites.

31:123 Psychology of Learning

3 s.h.
Theoretical and experimental bases of learning in animal, human behavior.

31:124 Psychology and the Law

3 s.h.
Social psychological problems in assigning blame, findings that address how principal actors in legal proceedings (i.e., defendants, witnesses, attorneys, judges) affect, and are affected by, each other.

31:126 Behavioral Neuroscience

3 s.h.
Basic concepts and techniques in neuroscience, their application to analysis of sensory processes, arousal mechanisms, motivation, learning.

31:127 Psychology of Dependency Behavior

3 s.h.
Methodological, theoretical problems in psychophysiological research; social, psychological, sociological, anthropological, legal factors.

31:128 Introduction to Behavioral Pharmacology

3 s.h.
How drugs affect behavior; emphasis on experimental findings from studies with animals, including man.

31:130 Psychology of Thinking

3 s.h.
Problem solving, reasoning, judgment and decision making, language and thought, intelligence, creativity. Recommended: 31:16 or 31:19.

31:132 Biopsychology of Motivated Behaviors

3 s.h.
Survey, critical analysis of motivational concepts in study of animal behavior; physiological/behavioral basis of behavior, including sleep, sex, maternal behavior, eating, drinking, addiction.

31:133 Fundamentals of Sensation and Perception

3 s.h.
Psychological and neurophysiological examination of humans’ major sensory systems, especially vision.

31:134 Cognition and the Brain

3 s.h.
Analysis of the brain as a biological computational system that performs cognitive tasks such as vision, language, and memory.

31:135 Principles of Behavioral Analysis

3 s.h.
Experimental analysis of behavior; application of behavior analysis to broad range of topics in psychology, including reflexive behavior, perception, learning, motivation and emotion, memory and cognition, language, abnormal behavior, drug addiction, social behavior, consideration of behaviorist philosophy.

31:137 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.

31:138 Love, Power, and Justice

3 s.h.
Psychological, philosophical, legal issues concerning individual’s role in a complex society.

Liberal Arts . Psychology
Primarily for Graduates

31:203 Social Perception and Attribution 3 s.h.
Theory, empirical analysis of perception of persons and attributions concerning internal processes; 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, social influence. Consent of instructor required.

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, loss 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, research about 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 Perceptual-Cognitive Development in Infancy 3 s.h.
Knowledge acquisition during first two years of life; development of visual, speech, bimanual perception; object concept and permanence; early perceptual concepts.

31:213 Developmental Research Methods 3 s.h.
Designs, methods used in developmental research, including observations, experimental paradigms, interviews, or parent and child reports; methods specific to different developmental periods and areas (cognitive, social, emotional, developmental psychology).

31:217 Psychobiology of Prenatal Development 3 s.h.
Current research on behavior before and immediately after birth; embryology and development of fetus, preterm infant, neonate; motor development, sensation, learning, adaptation to intraterine conditions.

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.

31:220 Fundamentals of Cognitive Science 3 s.h.
Broad overview of study of cognition, including cognitive psychology, perception and artificial intelligence, linguistics, neuroscience, philosophy of mind. Consent of instructor required.

31:221 Psychobiology of Motivation and Emotion 3 s.h.
Biological basis of emotion and of homeostatic and nonhomeostatic 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, theoretical relating variation in visual stimuli properties and cortical mechanisms to differential responding in visual recognition and discrimination tasks.

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, biomechanical mechanisms underlying behavioral processes in experimental animals, humans.
31:265 Neuroscience Seminar 0-1 s.h.

31:266 Psychological Therapies 3 s.h.
Historical development and current status of empirically based therapies for psychological disorders, including anxiety, depression, schizophrenia, childhood disorders; emphasis on critical evaluation of therapy techniques.

31:270 Clinical Research Methods 3 s.h.
Theory and methodology involved in design and execution of psychological research on clinical problems and/or with clinical populations: psychopathology, treatment, health, analog research. Consent of instructor required.

31:271 Psychoclinics 3 s.h.
Same as 3:254.

31:272 Psychoclinics Laboratory 4 s.h.
Same as 3:255.

31:276 Advanced Developmental Psychology 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.

31:290 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.
Historical and contemporary theories; current research on origins, nature, significance of human individual differences.

31:303 Advanced Topics in Social Psychology 0-2 s.h.
Recent theory, research.

31:315 Seminar: Social Development 0-2 s.h.
Theory, methodological issues focused on social, emotional, personality development.

31:318 Seminar: Cognitive Development 0-2 s.h.
Theoretical, methodological issues focused on cognitive and perceptual development. May be repeated.

31:330 Seminar: Cognitive Psychology 2 s.h.
Consent of instructor required.

31:332 Seminar: Attention 0-2 s.h.
Human attention, perception, information processing.

31:333 Seminar: Memory 0-2 s.h.
Theoretical viewpoints on nature of human memory; discussion of recent research.

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: Behavioral and Cognitive Neuroscience 0-2 s.h.

31:360 Seminar: Orientation to Clinical Research 0-1 s.h.
Faculty research in clinical psychology. Maybe repeated.

31:361 Seminar: Clinical Psychology I arr.
May be repeated. Consent of instructor required.

31:370 Seminar: Health Psychology 0-2 s.h.
Theoretical and methodological issues. May be repeated. Consent of instructor required.

31:380 Ethics and Professional Concerns arr.
Standards, procedures for review of studies with human participants, professional ethics, licensing, teaching of psychology, professional placement.

31:461 Introductory Practicum arr.
Orientation to Department of Psychology clinic, including instruction in interviewing, observation of clinic procedures, attendance at Clinic Rounds under supervision of clinical psychology faculty members. 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 application and evaluation of psychological therapies. Consent of clinical training committee required.

31:464 External Practicum arr.
Supervised practice and clinical experience in field setting; psychological assessment techniques and/or application, evaluation of psychological therapies. Consent of clinical training committee required.

31:490 Teaching Practicum arr.
Skill development in preparing and presenting lectures, developing course plans, interfacing with students. May be repeated. Consent of instructor required.

RELIGION

Director: Robert D. Baird

Assistant professors: Wendi L. Adamek, Ralph Keen, Janine Anderson Sawada, Frederick M. Smith

Associate professors: Diana Fritz Cates, Helen T. Goldstein

Graduate assistant professor: C. Samuel McNeely

Graduate assistant professors: Wendi L. Adamek, Ralph Keen, Janine Anderson Sawada, Frederick M. Smith

Undergraduate assistant professor: 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 arts education. 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. Diverse academic methods — including historical, textual, artistic, and literary approaches — are used to study the variety of ways in which religions have formulated values and addressed matters of ultimate concern.

Undergraduate Program

Each year almost two thousand University students enroll in courses in religion to fulfill part of their General Education Program requirements. Students who choose to major in religion may count a maximum of three religion courses approved to meet General Education Program 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. Students may include up to 15 semester hours of transfer credit toward the major. Transfer credit is evaluated on an individual basis.
Four-Year Graduation Plan
The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan.
Before the third semester begins: at least one-quarter of the semester hours required for graduation
Before the fifth semester begins: one or two courses in the major and at least one-half of the semester hours required for graduation
Before the seventh semester begins: three to six courses in the major and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: five to seven courses in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors
Students with a 3.20 overall grade-point average are eligible 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 the 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 repeat 32:197 and 32:198 for credit as electives, but they may not count each course more than once toward the requirements for the religion major. 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 grade-point average of at least 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered above 32:20.

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 toward the M.A.: thesis and nonthesis. In both, students must earn a minimum of 30 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 the 30 semester hours 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 proposal 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.

Doctor of Philosophy
The broad-based Ph.D. program places a high priority on the academic study of religion in its broad intellectual and cultural contexts. The program is structured to facilitate development of the research skills necessary to undergird effective teaching and to foster the generation of new knowledge. As teaching assistants, Ph.D. students have maximal opportunity to develop teaching skills.
Candidates for the doctorate must complete a minimum of 72 semester hours of graduate course work, of which 9 semester hours must be taken outside the School of Religion. A maximum of 12 semester hours is allowed for the dissertation.
The graduate areas of concentration are 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.
No later than the middle of the student’s fourth semester of residency, the entire faculty decides whether to grant candidacy to the student, upon the recommendation of the faculty committee of one of the Ph.D. programs. The student must take the following.
32:200 Colloquium: Introduction to the Graduate Study of Religion 1 s.h.
32:205 Methods and Theories in the Study of Religion 3 s.h.
In addition, students must show evidence of scholarly writing ability, determined by a series of papers, one for each completed semester of residency, which program faculty have previously judged to represent satisfactory progress toward the degree.
Students also must have a cumulative grade-point average of at least 3.20, make satisfactory progress in the language requirements appropriate to his or her program, and file a plan of study that lists course work and language and research tools in preparation for the written and oral comprehensive exams.
Doctoral candidates must pass an oral examination on the dissertation.
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 relationships among 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 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.

Language Study at the University
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 languages as needed.

Courses
32:1 Judeo-Christian Tradition 3 s.h.
32:2 Religion and Society 3 s.h.
Meaning of religions questions and answers in traditional and modern social contexts in the West. Offered spring semesters. GE: humanities.
32:3 Quest for Human Destiny 3 s.h.
Quests for destiny in terms of perceived options/goals and ability to recognize, pursue, achieve them. GE: humanities.
32:4 Living Religions of the East 3 s.h.
Religious beliefs, practices in India, China, Japan. GE: foreign civilization and culture or historical perspectives. Same as 39:64.
32:8 Asian Humanities: India 3 s.h.
Four thousand years of South Asian civilization. GE: foreign civilization and culture or humanities. Same as 39:18.
32:9 Asian Humanities: China 3 s.h.
GE: foreign civilization and culture or humanities. Same as 39:19.
32:10 Introduction to Religious Studies 3 s.h.
Approaches to the study of religion. Junior or senior standing or consent of instructor required. GE: 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 contexts; continuing impact.
32:15 New Testament Survey 3 s.h.
Literature of New Testament in its historical setting. GE: humanities.

32:51 Religious Thinkers of the West 3 s.h.
Augustine, Bonaventure, Fichte, Kierkegaard, Heldegger. GE: 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. GE: 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. GE: 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; contemporary sexual ethical issues.

32:85 Zen and Japanese Culture 3 s.h.
Relationship between Zen and Japanese cultural forms, including ink painting, tea practices, sword skills. Same as 390/85.

32:86 New Religions in Japan 3 s.h.
Religious groups that emerged in Japan during 19th and 20th centuries. Same as 390/86.

32:100 Biblical Hebrew I 3 s.h.
Basic elements of classical Hebrew grammar and syntax.

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 HE110.

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 Inanna 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.
Grammar; reading of Aramaic portions of Old Testament.

32:111 Religion and Women 3 s.h.
Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GE: humanities. Same as 131/111.

32:113 Introduction to the Intertestamental Period 3 s.h.
History, theology of Judaism from 200 B.C.E. to 155 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 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 Introduction to African Religions 3 s.h.
Same as 129/120.

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.
Pauline theology in historical context.

32:124 The Synoptic Gospels 3 s.h.
Interpretation of one of first three gospels, with reference to other two.

32:128 African Islam 3 s.h.
Islam in combination with several local religions; focus on Mourié Brotherhood of Senegal. Same as 113/121, 129/121.

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 Medieval and Reformation Religious Thought 3 s.h.
Classics of scholastic, scholastic, reformation theology; special attention to relationships among authors, periods, genres. GE: 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.
32:135 Twentieth-Century Catholic Theology 3 s.h.

32:136 Religious Thought in Enlightenement 3 s.h.
Religious thought (1680-1790) that challenged the legitimacy of tradition and attempted to base all of life, including religion, on nature and reason; readings Spinoza to Lessing, Kant.

32:137 Religious Thought in the Nineteenth Century 3 s.h.
History, analysis of main developments, 1800/1915.

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 Witnesses, 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, world’s 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 2-3 s.h.
Selected American thinkers. Same as 16A: 124.

32:145 Ultraconservative and Radical Theologies in American History 2-3 s.h.
Intellectual patterns of the far right and left. Same as 16A:118.

32:146 Philosophy of Religion 3 s.h.
Same as 20/134.

32:148 Literature and Philosophic Thought of the Holocaust 3 s.h.
Same as 35/152.

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 16th century—Lutheran, Calvinist, Radical, English; readings from major representatives of each.

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, moral and religious transformation.

32:160 Goddesses in India 3 s.h.
Most important and characteristic feminine divine beings in 3,000 years of South Asian sacred literature and practice. Same as 39/160.

32:161 History of Religious Ethics 2-3 s.h.
Christian, Jewish ethics from Paul to Martin Buber; focus on meaning and value of love.

32:163 Introduction to Biomedical Ethics 3 s.h.
Ethical dimensions of modern life sciences; emphasis on problems of method. Same as 153/163.

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. GE: 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 115/142.

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 Religion and Politics in the Modern Middle East 3 s.h.
Same as 16W:168.

32:169 Karma, Rebirth, and Human Destiny 3 s.h.
Development of karma and rebirth doctrines 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 HE115. 39/181.

32:175 Painting of India 3 s.h.
Same as 1H/118, 39/168.

32:176 Chinese Religions 3 s.h.

32:177 Indian Literature 3 s.h.
Same as 39/136.

32:178 The Literature of Daoism 3 s.h.
Readings illustrating pervasive influence of philosophical and religious Daoism in areas of traditional Chinese life, such as political theory, poetry and the arts, alchemy and medicine, sexual custom, combat. Same as 39/140.

32:179 Scripture, Cult, and Practice in Chinese Religions 3 s.h.
Same as 39/178.

32:180 Buddhist Sacred Texts 3 s.h.
Mahayana texts in translation. Recommended: courses in Asian culture or history. Same as 39/162.

32:181 Buddhist and Hindu Iconography 2-3 s.h.
Same as HE/114.

32:182 Religion in Japan 3 s.h.
Premodern development of religious ideas and practices. Same as 39/161.

32:183 Readings in Japanese Religious Texts 3 s.h.
Readings in translation or in original Japanese, depending on enrollment. May be repeated. Consent of instructor required. Same as 39/170.
32:184 Religious Themes in Japanese Literature 3 s.h.
Same as 39:184.

32:186 Buddhism and Chinese Culture 3 s.h.
Cultural transmission, transformation, adaptation through concentrated study of Buddhist biographical writing, varieties of Buddhist literature in China; structures and functions of Chinese Buddhist monasteries. Same as 39:171.

32:187 Tokugawa Religion 3 s.h.
Japanese religion and thought, including Confucian, Buddhist and Shinto developments; 1600 to mid-19th century. Same as 39:187.

32:188 Zen Buddhism 3 s.h.
Development of Zen Buddhism 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 39:170.

32:190 Indian Religion and Social Science 3 s.h.
Classical Indian religion according to social scientific principles; etic/historical method. Same as 39:190.

32:191 Religion in India 3 s.h.
Movements, doctrines, religious practices, in history and in modern expressions. Same as 39:187.

32:192 Religion and Personality 3 s.h.
Use of psychological methods, theories in interpretation of religious experience, behavior; influence of religion on personality development.

32:193 Suffering, Death, and Faith 2-3 s.h.
Role of religion for persons suffering from life-changing, life-threatening illness. Same as 155:195.

32:194 Alternate Universes: Readings in Hindu Mythology 3 s.h.
English translations of the Sanskrit Puranas or "ancient stories"; focus on influence of these collections of myth and ritual on contemporary Hindu worldview. Same as 39:173.

32:195 Individual Study Undergraduates arr.
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.
Religio-cultural milieu of biblical Israel; limited archeological evidence and representative religious and historiographic texts in translation from ancient Egypt, Mesopotamia, Syria, Anatolia.

Noncanonical Christian texts of Roman and Byzantine periods; linguistic, literary, theological matters; in original language. May be repeated.

Ministry of Jesus, beginning of church; variety of Christian beliefs, practices in first century.

32:211 Seminar: Studies in Christian Origins II 3 s.h.
Development of Christianity to late second century; character, relationships of Jewish Christianity, Gnosticisms, emerging orthodoxies.

Same as 16:275.

32:214 Seminar: Puritanism arr.

32:220 Proseminar: Introduction to Systematic Theology 3 s.h.
Theological thinking; basic questions about theological systems, resources, methods, aims, characters of religious thought.

32:222 Seminar in Historical Theology 3 s.h.

32:223 Seminar: Reformation Theology arr.
Theology of one great Protestant reformer of the 16th century.

32:224 Seminar Contemporary Theologyarr.
Reveue's hemanetics.

32:225 Seminar in Recent Catholic Theologyarr.
Contemporary theologies or problem.

32:226 Seminar: Religious Ethics 3 s.h.

32:229 Feminist Ethics Current issues in feminist religious ethics. Same as 131:220.

32:230 Seminar: Ethics of Aristotle and Aquinas 3 s.h.
Structure of human action, nature of virtue, content of the good human life according to Aristotle, Aquinas.


32:232 Seminar: Religion in Modern India Modern Indian thinker or movement. Same as 39:267.

32:233 Seminar Buddhism arr.
Buddhist thinker or movement. Same as 39:263.


32:235 Seminar: Chinese Religions 3 s.h.

32:236 Religion in Ancient India 3 s.h.
Upanisads, including the Bhradaranyaka and Chandogya; early literature on yoga, with focus on ideas of self, god, structure of cosmos, nature of transcendence. Same as 39:236.


32:245 Clinical Study of Religion 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 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 May be repeated.

32:264 Readings in Religious Ethics May be repeated.

32:265 Readings in Asian Religions May be repeated.

32:266 Readings in the Methodology and the History of Religions May be repeated.

32:267 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.
Courses

For Undergraduates

General Education

Completion of 10:1-2 (or 10:3 for qualified students) fulfills the composition and speech requirement.

10:1 Rhetoric I 4 s.h.
Speaking, writing, critical reading, emphasis on exposition and competence in analyzing, organizing, developing ideas and adapting discourse to readers and listeners; two introductory assignments, four essays, four speeches, several critical reading assignments; extensive revision of all assignments, peer workshop of most; first of two-semester sequence. GE: rhetoric.

10:2 Rhetoric II 4 s.h.
Oral and written communication; focus on argument, persuasion, research, competence in research procedures, location and evaluation of information and diverse points of view, analysis and responsible use of evidence, reasoned interpretation of substantive matter; two introductory assignments, four essays, four speeches, several critical reading assignments; extensive revision of all assignments, peer workshop of most; second of two-semester sequence. GE: rhetoric.

10:3 Accelerated Rhetoric 4 s.h.
The 10:12 sequence in one semester; two introductory assignments, four essays, four speeches, several critical reading assignments; extensive revision of all assignments, peer workshop of most. GE: rhetoric.

10:4 Writing and Reading 3 s.h.
Introduction to writing; two introductory assignments, four essays, several critical reading assignments; extensive revision of all assignments, peer workshop of most. GE: rhetoric.

10:6 Speaking and Reading 3 s.h.
Introduction to speaking, with emphasis on listening, critical and analytical skills; six speeches, several critical reading assignments, one exam on theoretical material; for students who have completed a college-level writing course or are exempt from the speech requirement, but who have not completed an equivalent college-level writing course and are not exempt from that requirement. GE: rhetoric. Prerequisite: fulfillment of writing requirement.

Labs

10:8 Individual Instruction in Reading 2 s.h.
Focus on needs, interests of student. Open only to students who have not fulfilled the rhetoric requirement. Consent of Reading Lab director required.

10:9 Individual Instruction in Writing 2 s.h.
Focus on needs, interests of student. Open only to students who have not fulfilled the rhetoric requirement. Consent of Writing Lab director required.

10:89 Introduction to College Reading and Writing 4 s.h.
Intensive work in preparation for 10:1. Corequisite: two hours per week in Writing Lab.

Special

The following Rhetoric courses are offered on a three-year cycle and more frequently when possible.

10:13 Rhetorical Process 3 s.h.
Rhetorical analyses of writings, speeches, advertisements, and so forth; two performances, one written, one spoken.

10:103 Rhetorical and Academic Inquiry 3 s.h.
Close reading, rhetorical analysis of disciplined expectations that academic fields have for their presentation of data, reasons, arguments.

10:130 Issues in Rhetoric: Television and Society 3 s.h.
Rhetorical force that societal values acquire as they are represented by television; television’s rhetorical force examined through theories of persuasion from the rhetorical tradition. Offered only through Saturday & Evening Classes.

10:131 Classical Rhetoric and Greek Culture 3 s.h.
Origins, development of the art of rhetoric from Sophists to Aristotle; significance to Greek culture from fifth to fourth century B.C. GE: humanities.

10:133 Rhetoric of Liberalism 3 s.h.
Paradigms of the rhetorics of liberalism; possibilities and limits of liberalism’s commitment to persuasion, social change. Same as 36C:133.

10:141 Rhetoric and Past Public Controversy 3 s.h.
Role of rhetoric in public controversy in particular historical time periods; focus on various perspectives, diverse voices, and multiple arguments informing particular movements/issues. Same as 36C:137.

10:142 The Politics of Literacy 3 s.h.
Social dynamics of literacy instruction and literacy learning; may include service learning component tutoring in school or community setting. Same as 7E:154, 7E:158, 1B:173.

10:143 Rhetorical Traditions 3 s.h.
Major rhetorical traditions outside the 20th century, including Greek, Roman, British, American.

10:144 Academic Discourses 3 s.h.
Links between rhetoric and history, including histories from selected cultures, time periods; focus on how rhetorics of historical narration incorporate, advocate, or seek to change democratic principles and egalitarian versions of society.

10:151 Foundations of Rhetorical Theory and Criticism 3 s.h.
Thinkers typically identified with postmodern, structuralist, feminist, and other perspectives whose theories of language, subjectivity, and power have shaped our understanding of rhetoric’s role, function, implications, and limits as a means for effecting social change. Prerequisite: rhetoric requirement. Same as 8:173, 36C:151.

10:152 Twentieth-Century Rhetorical Theory and Criticism 3 s.h.
Rhetorical theory and criticism as discourses produced within a socio-political environment. Same as 36C:132.

10:154 Rhetoric and the Public Sphere 3 s.h.
Role of rhetoric in making the public sphere; how a participatory democracy comes into being when the public sphere is fragmented by asymmetrical power relations.

10:160 Issues in Rhetoric and Culture 3 s.h.
Second-century rhetorical theory, criticism; how contemporary cultural practices shape our sense of self, our place in society. Same as 8:181, 36C:153.

10:199 Special Projects 3 s.h.
For Graduates

10:201 Rhetoric Workshop 3 s.h.
Individual projects in writing, reading, speaking with intensive peer response.

10:313 Practices of Learning 3 s.h.
Rhetorical strategies of humanities and social sciences research and interdisciplinary discourse; rhetorical analysis of draft dissertation chapters; rhetorical aspects of instruction.

10:330 Issues in the History of Rhetoric 3 s.h.
Rhetorical history and historiography.

10:333 Rhetorics of Liberalism 3 s.h.
Dialectical rhetoric of liberalism; theoretical aspects of liberalism’s commitment to persuasion, social change.

10:335 History of Composition Studies 3 s.h.
Traditional and revisionist histories of composition studies; theories of historiography that motivate contemporary histories of composition studies.

10:340 Current Issues in Rhetoric 3 s.h.
Ethical, social, or cultural issues; rhetoric’s role in their contemporary significance; traditional aspects of rhetoric, their pertinence to present concerns.

10:345 Research on Writing 3 s.h.
Same as 8W:345.

10:349 Rhetorical Theory 3 s.h.
Rhetorical concepts from antiquity to the present; rhetoric’s role in related intellectual traditions, academic disciplines. Same as 8W:259.

10:350 Colloquium: Teaching Rhetoric 3 s.h.
Same as 8P:450, 36:256.

10:361 Rhetorics of Ethnographies 3 s.h.
Rhetorical theory, analysis applied to selection of ethnographic “classics” and more recent ethnographies; tropes and conventions of ethnographic writing; essays, oral presentations, fieldwork. Same as 8:266, 113:261.

10:370 Teaching in a Reading Lab 3 s.h.
Same as 8P:370.

10:375 Teaching in a Writing Lab 3 s.h.
Same as 8W:375.

10:376 Teaching in a Speaking Lab 3 s.h.
Stages of the speaking process from combined perspectives of recent rhetorical theory and pedagogical philosophy.

10:550 Special Project for Graduate Students 3 s.h.

10:600 Seminar in Rhetorical Theory 4 s.h.
Same as 36R:600.

10:604 Seminar: Contemporary Rhetorical Theory 2-4 s.h.
Same as 8W:404, 36R:604.

10:650 Rhetoric and Desire 3 s.h.
Link between traditional theories of rhetoric and premodern, modern, post-structuralist, and postmodern theories of desire.

Rhetorics of Inquiry

Director: Bruce E. Gronbeck
Curriculum committee: Frederick J. Antczak (Rhetoric), Mary J. Depew (Classics), Jane C. Desmond (American Studies), Bruce E. Gronbeck (Communication Studies), Lopa Lopes (Management and Organizations), John S. Nelson (Political Science)
Graduate degree: certificate in Rhetorics of Inquiry
The Project on Rhetoric of Inquiry (POROI) is an interdisciplinary research and teaching program focusing on language and
argumentation. It began informally in 1980 when faculty from several disciplines began discussing their work in progress. Activities now include seminars, workshops, national and international conferences, and two book series—one at the University of Wisconsin Press, the other at the University of Chicago Press.

Together with The University of Iowa Graduate College, POROI offers the Interdisciplinary Certificate Program in Rhetorics of Inquiry in conjunction with a Ph.D. in any field.

Certificate

Students complete four required courses. The introductory course explores how scholarship is conducted through argumentative and linguistic strategies. Additional courses aim to improve students’ academic argumentation and style through comparative study in various fields of inquiry.

INTRODUCTORY COURSE
The course 36R:505 Proseminar: Rhetoric of Inquiry surveys theories of rhetoric, current practices of academic inquiry, modes of rhetorical analysis, and inquiry in professional and educational settings. It is intended to sharpen students’ understanding of humane and social-scientific studies.

INTERMEDIATE SEMINARS
Two courses provide increased depth in philosophical, metacritical, or theoretical aspects of inquiry, complementing and extending work that students are pursuing in their disciplinary doctoral studies. The program considers courses that are included in students’ Ph.D. programs. Courses on the following topics are among those that could serve as intermediate seminars: ideology and myth in popular culture, mass communication and cultural studies, feminist ethnography, political communication theory, history of 19th century capitalism, and history of sociological thought.

CAPSTONE WORKSHOP
Practices of Learning (10:313) fosters cross- and interdisciplinary conversation. Students work at their own projects, presenting them in oral and written form to the workshop, and learn to work across disciplinary boundaries. The seminar helps students learn how to guide discussions, present lectures, formulate papers and assignments for others, and learn to adapt disciplinary forms and frames of thought outside their own fields.

ORAL DEFENSE OF PAPER
The program is completed when students defend a substantive paper before a group of three members of the POROI graduate faculty.

Admission

To enter the certificate program, applicants must have earned a cumulative grade-point average of at least 3.50 on all previous graduate coursework. Applicants must be admitted to a University of Iowa doctoral program; however, doctoral students visiting from other institutions may be granted admission upon special consideration by the Graduate College and the certificate program’s curriculum committee. Before admission, applicants draw up a plan of study that outlines their goals as agreed upon with their doctoral adviser and the certificate program director. The plan becomes the basis for identifying appropriate intermediate seminars.

Admission is approved by the certificate program director. Admitted students participate in POROI activities, use the POROI study room and library, and seek out POROI students and faculty as critical audiences for their work. Classroom work is complemented by workshops, lectures, and conferences University-wide.

For more information, contact the Project on Rhetoric of Inquiry.

RUSSIAN

Chair: Margaret H. Mills
Professors emeriti: Norman Luxenburg, Helene Scribner, Harry B. Weber
Associate professors: Margaret H. Mills, Christopher A. Wertz
Assistant professors: Kathryn Henry, Russell Valentin
Assistant professor emerita: Miriam J. Gelfand
Clinical instructor: Karen L. Myers
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. Recent trends have shown an increase in Russian students pursuing the International Business Certificate, as well. These students enhance their future employment opportunities as well as build a better foundation for graduate and professional programs in Russian area studies.

Through the University’s Bachelor of Arts degree program in Russian, East European, and Eurasian studies, interested students can focus their undergraduate training on a broader interdisciplinary understanding of this region of the world. For more information on this complementary B.A. program, see “Russian, East European, and Eurasian Studies” in this section of the Catalog.

With the increasing importance of Russian as a language of science and commerce, many students find that training in the language is an important asset to careers in the natural and physical sciences, engineering, medicine, and business. Students of journalism, library science, and the social and military sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going into law, international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanistic disciplines.

Russian majors with a B.A. and the required education courses occasionally seek teaching careers in secondary schools (see the relevant teacher-preparation programs in the College of Education section of the Catalog). A number of governmental agencies annually interview job candidates who have advanced training in Russian; these agencies give preference to applicants who couple strong language proficiency with a well-rounded background in area studies. Students who develop an exceptional facility with the language may pursue careers in literary and technical translation and interpretation.

Undergraduate Program

Students working toward the B.A. in Russian must meet the College of Liberal Arts general degree requirements (see the College of Liberal Arts section of the Catalog) and earn at least 28 semester hours of credit in advanced Russian courses. Required courses are as follows.

41:109 Beginning Composition and Conversation I 4 s.h.
or 41:110 Beginning Composition and Conversation II 4 s.h.
41:111-112 Third-Year Russian I-II 8 s.h.
41:113-114 Fourth-Year Russian I-II 8 s.h.
Three of these:
41:151 Russian Literature in Translation 1808-1860 3 s.h.
41:152 Russian Literature in Translation 1860-1917 3 s.h.
41:155 Tolstoy and Dostoevsky 3 s.h.
41:160 Women in Russian Society 3 s.h.
41:170 Rise of the Russian Novel 3 s.h.
41:181 Soviet Literature to 1954 3 s.h.
41:182 Soviet Literature since Stalin 3 s.h.
41:185 Introduction to Russian Culture 3 s.h.
41:186 Russia Today 3 s.h.

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.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain
semesters in order to stay on the University’s four-year graduation plan.
Before the third semester begins:
competence in first-year Russian and at least one-quarter of the semester hours required for graduation
Before the fifth semester begins:
competence in second-year Russian and at least one-half of the semester hours required for graduation
Before the seventh semester begins:
competence in third-year Russian and at least three-quarters of the semester hours required for graduation
Before the eighth semester: competence in fourth-year Russian and two more courses in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Graduate Program
Available 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 engage in 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, linguistics, 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 generally are not awarded to first-year students, although exceptions may be 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 department.

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 1995-96, 12 UI students participated in summer, semester, or academic year programs under the auspices of the American Council of Teachers of Russia (ACTR), the association that directs academic language training programs in Moscow and St. Petersburg. Before they study abroad, many students accelerate and refine their Russian language skills in various intensive summer programs at major American universities, including The University of Iowa program, conducted in cooperation with Moscow State University.

Inquiries should be directed to the Russian department.

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 and culture, a monograph course on Tolstoy and Dostoevsky, and courses on women in Russian society and Russia today.

Special Activities
The Russian Society is a student organization open to both American and Russian undergraduates and graduate students; it meets regularly for social and educational activities and provides students with valuable opportunities 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 Society functions, including weekly meals and other social events.

A number of outstanding students are inducted annually into Dobro Slav, the National Slavic Honor Society. They are honored at a commemorative gathering during the spring semester.

Language Media Center
The University’s Language Media Center provides facilities for language learning, teaching, and research. Equipment in the center includes state-of-the-art computer, audio, and video facilities as well as standard and short-wave radios, tape and cassette recorders, record players, and soundproof recording rooms. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings also are available.

Courses

For Undergraduates and Graduates

41:000 Cooperative Education Internship 0 s.h.
Experience related to student’s academic interests.

41:1 First-Year Russian I 4 s.h.
Basic language skills of listening, speaking, reading, and writing; fundamentals of Russian grammar. GE: foreign language.

41:2 First-Year Russian II 4 s.h.
Continuation of 41:1, which is prerequisite. GE: foreign language.

41:3 Second-Year Russian I 4 s.h.
Prepares transition to upper-level study through oral practice, grammar exercises, tapes, videos, and readings from the Russian press. GE: foreign language. Prerequisite: 41:2 or equivalent.

41:4 Second-Year Russian II 4 s.h.
Continuation of 41:3, which is prerequisite. GE: foreign language.

41:108 Special Readings arr.
Russian-language materials determined by student and instructor. May be repeated. Prerequisite: 16 s.h. of language instruction.
Beginning Composition and Conversation I 4 s.h.
Oral-aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review, supplemented by short stories, newspaper texts. Conducted in Russian. Prerequisite: 41:112 or equivalent.

Beginning Composition and Conversation II 4 s.h.
Oral-aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, newspaper texts. Conducted in Russian. Prerequisite: 41:112 or equivalent.

Third-Year Russian I 4 s.h.
Advanced grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisite: 41:112 or equivalent.

Third-Year Russian II 4 s.h.
Advanced grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisite: 41:112 or equivalent.

Fourth-Year Russian I 4 s.h.
Perfecting spoken Russian and aural comprehension of native speech. Conducted in Russian. Prerequisite: 41:112 or 3 years of college level Russian or equivalent.

Fourth-Year Russian II 4 s.h.
Perfecting spoken Russian and aural comprehension of native speech. Conducted in Russian. Prerequisite: 41:112 or 3 years of college level Russian or equivalent.

Intermediate Composition and Conversation I 4 s.h.
Grammar, lexicon, stylistics, conversational skills, reading composition; attention to difficulties for English speakers, including verbal aspect and government, negation, passive voice, participles and gerunds, complex sentences, direct and indirect speech; newspaper articles, readings from 19th and 20th-century authors. Prerequisite: 41:112 or equivalent.

Intermediate Composition and Conversation II 4 s.h.
Grammar, lexicon, stylistics, conversational skills, reading composition; attention to difficulties for English speakers, including verbal aspect and government, negation, passive voice, participles and gerunds, complex sentences, direct and indirect speech; newspaper articles, readings from 19th and 20th-century authors. Prerequisite: 41:112 or equivalent.

Advanced Composition and Conversation I 4 s.h.
Grammatical structures, syntax, stylistic, word-formation; materials include short stories, newspaper and magazine articles, radio and television programs, Russian films. Prerequisite: 41:114 or equivalent.

Advanced Composition and Conversation II 4 s.h.
Grammatical structures, syntax, stylistic, word-formation; materials include short stories, newspaper and magazine articles, radio and television programs, Russian films. Prerequisite: 41:114 or equivalent.

Pronunciation and Intonation 3 s.h.
Oral-aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, newspaper texts. Conducted in English. Junior or higher standing required. Same as 48:170.

Soviet Literature to 1954 3 s.h.
Major writers, themes, genres, movements associated with post-1917 Soviet Russian literature, especially the literary ferment of the 1920s, regeneration of literary expression from the early 1930s to Stalin’s death; Blok, Mayakovsky, Zamyatin, Pilniak, Tabov, Oulianenko, Katen, Shaikhaliev, Gladkov, Ostrovsky, Bulgakov. Conducted in English.

Soviet Literature since Stalin 3 s.h.
Major writers, themes, genres, movements in post-Stalin Russo Soviet literature, including literary politics promoting “thaw” and “freezes,” the “youth movement” of the 1960s, “urban” and “village” prose of the 1970s and 1980s, publicist prose in era of glasnost and perestruika; Pasternak, Aksyonov, Karazov, Okudzhava, Evstratenskiy, Vronskenskiy, Triofinov, Iskander, Shashkin, Bitov, Rasputin. Conducted in English.

Introduction to Russian Culture 3 s.h.
Development of art forms in Russia from middle ages to present; painting, music architecture, literature viewed against their political and social settings. Conducted in English. GE: foreign civilization and culture.

Russia Today 3 s.h.
Contemporary Russia, with focus on prevailing social, political, economic, ethical, and environmental conditions; attention to historical evolution of problems, current factors; what these factors might portend for the future. Conducted in English. GE: foreign civilization and culture.

Honors 4 s.h.
Consent of department chair required.

Primarily for Graduates

Advanced Grammar I 3 s.h.
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 conjunction).

Advanced Grammar II 3 s.h.
Continuation of 41:201.

Russian Morphology 3 s.h.

Russian Syntax 3 s.h.

Russian Stylistic 3 s.h.

Russian Romanticism 3 s.h.

Modern Russian Literature 1880-1917 3 s.h.

Russian Poetry 3 s.h.

Russian Folklore 3 s.h.

Russian Literature: 1917-1991 3 s.h.

Teaching Methods 3 s.h.

Pedagogy for Russian language instruction; conducted in Russian.

Principles of Teaching and Learning Foreign Languages 3 s.h.

Problems in Russian Literary Criticism 3 s.h.

Proseminar: Research Methods 3 s.h.

History of the Russian Language 3 s.h.

Old Church Slavonic 3 s.h.

Phonology, morphology, syntax connections between old Church Slavice and Indo-European; reading of original texts, identification of grammatical forms.

Seminar: Russian Literature 3 s.h.

Seminar: Russian Linguistics 3 s.h.

Independent Research arr.

Speech Seminar 3 s.h.
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 the following.

41S:100 Introduction to the Commonwealth of Independent States 3 s.h.

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)

Nine additional courses 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

41S:190 Senior Project 3 s.h.

Students enroll for the senior project in the spring semester, working with one of the REEES co-directors; arrangements are discussed at an organizational meeting late in the fall semester preceding registration. The final written products of the project are presented at an open forum in late April, to which all REEES co-directors; arrangements are discussed.

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
6E:1 Principles of Macroeconomics 3-4 s.h.
41:1 First-Year Russian I 4 s.h.
41S:100 Introduction to the Commonwealth of Independent States 3 s.h.
General Education electives 4-6 s.h.

Spring Semester
6E:2 Principles of Macroeconomics 3-4 s.h.
16E:177 Imperial Russia 1801-1917 3 s.h.
41:2 First-Year Russian II 4 s.h.
General Education electives 4-6 s.h.

SOPHOMORE YEAR

Fall Semester
16E:176 Imperial Russia 1598-1801 3 s.h.
16E:178 Soviet Union 1917-1953 3 s.h.
41:3 Second-Year Russian I 4 s.h.
General Education electives 4-6 s.h.

Spring Semester
6E:164 Economics in Transition 3 s.h.
16E:179 Soviet Union 1953-1991 3 s.h.
41:4 Second-Year Russian II 4 s.h.
General Education electives 4-6 s.h.

JUNIOR YEAR

Fall Semester
19:155 Mass Media and Society (area-related) 3 s.h.
30:141 Russian Post-Soviet Politics 3 s.h.
41:111 Third-Year Russian I 4 s.h.
General Education electives 4-6 s.h.

Spring Semester
19:156 Comparative Communication Systems (area-related) 3 s.h.
41:112 Third-Year Russian II 4 s.h.
General Education electives 4-6 s.h.

SENIOR YEAR

Fall Semester
6E:125 International Economics 3 s.h.
16E:175 Muscovite Russia 1280-1598 3 s.h.
41:185 Introduction to Russian Culture 3 s.h.
General Education electives 3-4 s.h.
Organizational meeting for Senior Project (registration for spring semester)

Spring Semester
30:168 Russian Foreign Policy 3 s.h.
41:182 Soviet Literature since Stalin 3 s.h.
41S:190 Senior Project 3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: The program encourages students to do work beyond these minimum requirements.

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

Before the fifth semester begins: competence in first-year Russian, three courses in the major, and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: competence in Third-Year Russian I and eight courses in the major

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

Honors

The program leading to a B.A. degree with honors is open to students with a cumulative grade-point average of at least 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 may be 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.

Recent REEES majors have participated in the Boston University Internship program in Moscow and St. Petersburg.

Study Abroad

REEES faculty members work closely with the American Council of Teachers of Russian (ACTR) in Washington, D. C., the premier accredited national exchange program in the United States to prepare students both linguistically and culturally for the study abroad experience. ACTR currently has academic programs in Moscow and St. Petersburg. Through an agreement with Bryn Mawr College, ACTR participants receive academic credit toward degree programs at their home institutions. In addition to Russian language training, numerous programs are available to students who wish to pursue language and cultural training in Bulgaria, the Czech and Slovak republics, the former East Germany, Hungary, Poland, and Romania. REEES faculty members and the Study Abroad Office at the Office of International Education and Services (OIES) can help students choose these program sites.

REEES Area Courses

Course descriptions are available in the appropriate departmental sections of the Catalog.
All law courses require instructor's consent.

**JOURNALISM AND MASS COMMUNICATION**

33 semester hours of course work required for the Bachelor of Arts.

- 30:168 Russian Foreign Policy 3 s.h.
- 30:149 Problems in Comparative Politics 3 s.h.
- 30:141 Russian/Post-Soviet Politics 3 s.h.
- 30:41 Introduction to the Politics of Russia 3 s.h.
- 30:184 Honors Seminar on International Politics 3 s.h.

**LAW**

- 16:51 Colloquium for History Majors (area-related) 3 s.h.
- 16:41 Comparative Law 3 s.h.
- 16:174 Medieval Russia 3 s.h.
- 16:156 Comparative Economics 3 s.h.
- 16:456 Economics in Transition 3 s.h.
- 16:197 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.

**ECONOMICS**

- 6E:001 Principles of Macroeconomics 3-4 s.h.
- 6E:002 Principles of Microeconomics 3-4 s.h.
- 6E:125 International Economics 3 s.h.
- 6E:163 Comparative Economics 3 s.h.
- 6E:164 Economics in Transition 3 s.h.
- 6E:197 Honors Seminar (area related) arr.

**HISTORY**

- 16:51 Colloquium for History Majors (European) (area-related) 3 s.h.
- 16:174 Medieval Russia 3 s.h.
- 16:156 Comparative Economics 3 s.h.
- 16:456 Economics in Transition 3 s.h.
- 16:197 Honors Seminar (area related) 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.
- 16:255 Seminar Russian or Soviet History arr.
- 16:256 Readings: Russian History arr.
- 16:257 Readings: Soviet History arr.

**RUSSIAN**

All courses are conducted in English.

- 41:151 Russian Literature in Translation 1800-1860
- 41:152 Russian Literature in Translation 1860-1917
- 41:155 Tolstoy and Dostoievsky 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 Introduction to Russian Culture 3 s.h.
- 41:186 Russia Today 3 s.h.
- 41:199 Honors arr.

**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. Students may consult REEES advisors and the Department of Russian for information on other available scholarships, including scholarship opportunities for participation in intensive Russian language training in the summer, semester, and academic year study abroad programs in Russia.

**Special Activities**

The Russian Floor, one of five foreign language houses located in Hillcrest Residence Hall, offers students an exciting on-campus living experience. It has served as the residence for 12 exchange students from Moscow Linguistics University, and it provides a first-hand opportunity for American students to experience Russian language and culture. REEES faculty members and students join the residents for dinner once a week.

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**

- 41:100 Introduction to the Commonwealth of Independent States 3 s.h.
- 41:150 Independent Study arr.
- 41:190 Senior Project 3 s.h.
- 41:199 Honors arr.
Emphasis areas in physical science and general science are no longer being offered. Students who began work in these emphases before August 1996 must complete the major and graduate by August 2000; or they may switch to another emphasis area.

The requirements for the major in each of the emphasis areas are as follows.

### Biological Sciences Emphasis

At least 25 semester hours must be earned in 100-level courses.

#### Science

- 2:10 Principles of Biology I 4 s.h.
- 2:11 Principles of Biology II 4 s.h.
- Electives (in botany, microbiology, or zoology, including work in genetics, ecology, and physiology) 16 s.h.
- 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.
- 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.

#### Applications of Science

- 97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
- One of these:
  - 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.
  - 97:107 Textile Science 3 s.h.
  - 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 97:103 or 97:105 or 97:106 with the adviser’s approval.

### Environmental Studies Emphasis

#### Science

- 2:10-11 Principles of Biology I-II 8 s.h.
- 2:134 Ecology 4 s.h.
- 4:13-14 Principles of Chemistry I-II 6 s.h.
- 4:16 Principles of Chemistry Lab 2 s.h.
- 12:5 Introduction to Geology 4 s.h.
- 12:8 Introduction to Environmental Geology 4 s.h.
- 29:11 College Physics 4 s.h.
- 52:152 Environmental Chemistry 3 s.h.
- Biology electives 8 s.h.

Environmental science electives chosen from biology, environmental chemistry, engineering, and geography 4 s.h.

#### Applications of Science

- 97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
- 97:150 Resolution of Issues: Life Science 3 s.h.
- or 97:152 Resolution of Issues: Earth and Space Science 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.
- 12:8 Introduction to Environmental Geology 3-4 s.h.
- 12:109 Advanced Historical Geology: Iowa 3 s.h.
- 29:11 College Physics 4 s.h.
- 12:180 Environmental Geophysics 3 s.h.
- or 29:12 College Physics 4 s.h.

These:
- 4:13-14 Principles of Chemistry I-II 6 s.h.
- 4:16 Principles of Chemistry Lab 2 s.h.

### Chemistry Emphasis

At least 25 semester hours must be earned in 100-level courses.

#### Science

- 4:13-14 Principles of Chemistry I-II 6 s.h.
- or 4:18-19 Chemical Science I-II 6 s.h.
- 4:16 Principles of Chemistry Lab 2 s.h.
- or 4:20 Chemical Science Laboratory 2 s.h.

- 4:121 Organic Chemistry I 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.
- Chemistry electives 8 s.h.
- Physical science elective 3 s.h.

These:
- 29:11-12 College Physics 8 s.h.
- Physics electives 7 s.h.
- or these:
  - 29:17-18 Introductory Physics I-II 8 s.h.
  - 29:29 Physics I-II 4 s.h.
- Physics electives 3 s.h.

#### Applications of Science

- 97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
- One of these:
  - 97:102 Societal and Educational Applications of Earth Sciences 3 s.h.
  - 97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
  - 97:107 Textile Science 3 s.h.
  - 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.

### Physics Emphasis

At least 25 semester hours must be earned in 100-level courses.

#### Science

- 29:11-12 College Physics 8 s.h.
- or 29:17-18 Introductory Physics I-II 8 s.h.
- 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.
- 22M:35-36 Engineering Calculus I-II 8 s.h.
- 29:29 Physics III 4 s.h.
- Chemistry electives 6 s.h.
- Physics electives 12 s.h.

#### Applications of Science

- 97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
- One of these:
  - 97:102 Societal and Educational Applications of Earth Sciences 3 s.h.
  - 97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
  - 97:107 Textile Science 3 s.h.
  - 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.
Minors in Science Teaching

Five added endorsements in science are available for persons with teaching majors in other academic areas: biological sciences, chemistry, physics, earth science, and physical science. All require 33 semester hours of credit.

Students who want to pursue a science teaching minor and qualify for the University of Iowa recommendation for teaching licensure should consult a faculty member in science education.

All science teaching minors must take the following:

- 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 III: Middle/Junior High School 2 s.h.
- 7S:189 Elementary School Special Subject Area Student Teaching 3 s.h.
- 97:128 Meaning of Science 2-3 s.h.
- 97:130 Science in Historical Perspective 2-3 s.h.

In addition, they must take the following basic requirements in their chosen minor area:

**BIOLOGICAL SCIENCES**
- 210 Principles of Biology I 4 s.h.
- 211 Principles of Biology II 4 s.h.
- 97:103 Societal and Educational Applications of Chemical Concepts 3 s.h.
- Chemistry electives 10 s.h.

**CHEMISTRY**
- 413-14 Principles of Chemistry 1-11 6 s.h.
- 416 Principles of Chemistry Lab 2 s.h.
- 97:106 Societal and Educational Applications of Biological Sciences 3 s.h.
- Biological sciences electives 10 s.h.

**PHYSICS**
- 29:11-12 College Physics 8 s.h.
- Physics electives 10 s.h.
- 97:105 Societal and Educational Applications of Physical Sciences 3 s.h.

**GENERAL SCIENCE**
- 210 Principles of Biology I 4 s.h.
- 413 Principles of Chemistry I 3 s.h.
- 12:5 Introduction to Geology 4 s.h.
- 29:11 College Physics 4 s.h.
- Applications elective (97:102 or 97:1103 or 97:105 or 97:106) 3 s.h.
- Science electives 6 s.h.

**EARTH SCIENCE**
- 12:5 Introduction to Geology 4 s.h.
- 29:61 General Astronomy 4 s.h.
- Geology and astronomy electives 12 s.h.
- 97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.

**PHYSICAL SCIENCE**
- 433-14 Principles of Chemistry I-II 6 s.h.
- 416 Principles of Chemistry Lab 2 s.h.
- 12:5 Introduction to Geology 4 s.h.
- 29:11-12 College Physics 8 s.h.

One of these:
- 97:102 Societal and Educational Applications of Earth Sciences and Environmental 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.
- 97:107 Textile Science 3 s.h.

Special Rules

Since the Science Education Program may involve many faculty advisers and several colleges and departments, some special rules and regulations apply to science education students. They include the following.

- At least 10 semester hours of graded credit in science must be earned at The University of Iowa.
- No credit from the CLEP Natural Science General Examination may be used toward the major in science education.
- Science courses taken in other colleges of the University (e.g., Colleges of Engineering and Medicine) are not accepted in lieu of the required course work for the major unless one of the College of Liberal Arts science departments certifies in writing to the Office of the Registrar that the course from outside the college is equivalent to the one offered by the College of Liberal Arts department.
- Courses used for the major may not be taken pass/nonpass; grades from all courses used for the science education major are used in computing a student's grade-point average in the major, both at The University of Iowa and overall.
- Since mathematics forms an integral part of so many aspects of modern science, all science education students are urged to complete appropriate advanced courses in both pure and applied mathematics (including statistics and computer science) so that they may be qualified to do graduate work and quantitative research later.

Honors

To graduate with honors, students must maintain a 3.20 grade-point average and complete 97:99 Honors Research Project in addition to other science education requirements.

Graduate Programs

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, social issues in science and technology, curriculum planning and development, professional development, intellectual development related to teaching and learning science, studies of effective use of hands-on activities, and evaluation and assessment of science instruction and programs.

Special Programs
A wide range of funded programs provides ample opportunity for students to be involved in innovative development and research in science education. Of special importance is the Science Education Center’s commitment to improvement of science programs, toward which it works with teachers from Iowa and throughout the country. Special 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 led the way in developing, testing, and implementing many national programs. Iowa recently has been chosen as 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 involves many teachers from Iowa and some contiguous states in an effort to redefine goals for science curricula and develop special materials to achieve these goals.

Many Science Education Center activities are funded by NSF, Title II, Eisenhower, the Iowa Lottery program, and Iowa industries. Teachers involved with inservice programs often 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, China, Italy, Spain, Portugal, Israel, Nigeria, Malaysia, Indonesia, Korea, Australia, Taiwan, South Africa, Mexico, Venezuela, 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; an ICN instructional 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 commons 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
97:00 Cooperative Education Internship 0 s.h.
97:99 Honors Research Project arr.

For Undergraduates and Graduates
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences arr.
97:103 Societal and Educational Applications of Biological Sciences arr.
97:105 Societal and Educational Applications of Physical Sciences arr.
97:106 Societal and Educational Applications of Chemical Concepts arr.
97:107 Textile Science 3 s.h.
97:108 Experimental Textile Science 3 s.h.
97:110 Earth Science for Resolving Issues 2-3 s.h.
97:111 Life Science for Resolving Issues 2-3 s.h.
97:113 Race to Save the planet 3 s.h.
97:114 Physical Science for Resolving Issues 2-3 s.h.
97:115 Introduction to Museology 3 s.h.
97:119 Directed Study arr.
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
97:150 Resolution of Issues: Life Science 2-3 s.h.
97:151 Resolution of Issues: Physics 2-3 s.h.
97:152 Resolution of Issues: Earth and Space Science 2-3 s.h.
97:153 Resolution of Issues: Chemistry 2-3 s.h.
97:154 A World View of Science 2-3 s.h.

SOCIAL STUDIES
Coordinator: Bruce Fehr
Assistant professors: Bruce Fehr, Gregory Hamot
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.

Students who want to teach social studies should consult with the social studies coordinator; see “Teacher Licensure.” Undergraduate programs (Plan A and B) do not lead to teacher licensure.

General Program
Major requirements for the B.A. in social studies total 60 semester hours earned in departments that cooperate in the social studies education program. Students choose Plan A or Plan B. Transfer work is evaluated on a case-by-case basis.

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.

GE: fine arts or humanities. Same as 7S:112, 24:102, 28:102, 113:103.
97:119 Directed Study arr.
PLANNING A Bachelor of Arts degree to social science research, 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 maybe obtained in conjunction with the social studies major. See “Global Studies” in this section of the Catalog.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: The major requires 20 classes and a total of 60 semester hours. Two of the classes also may satisfy General Education Program requirements. These checkpoints do not include courses for teacher licensure.

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

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

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

Before the eighth semester begins: three more courses in the major

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

Teacher Licensure

Students who want to obtain a teaching license in history or other social science areas must declare and complete a major in the academic field in which they plan to teach. They also must earn a total of 30 semester hours in that field and complete 15 semester hours in each of two fields related to history or social science. Majors and related fields may be chosen 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 program coordinator.

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 Department of Social Studies and the College of Education. Social studies students have access to the department 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 the academic computing services of Information Technology Services.

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 consultation work, and in working with schools in curriculum revision.

Social Work

Director: Patricia Kelley

Professors: Lorraine Dörfman, H. Wayne Johnson, Patricia L. Kelley, Thomas H. Walz

Professors emeriti: Ralph E. Anderson, Frank Z. Glick

Adjunct professors: Woodrow W. Morris, Beverlee C. Tracy

Clinical professor: Susan Schecter

Associate professors: Amy Butler, Jim Hall, Jeffrey Jensen, Edward J. Saunders, William M. Theisen

Associate professors emeriti: W. Stanley Good, Katherine A. Kruse

Adjunct associate professors: Jay Cayner, John Else, Janet Laube, Craig Mosher, Charles M. Palmer, Howard J. Ruppel Jr.

Visiting associate professor: Jacqueline Bolden

Assistant professors: Carolyn Hartley, Julia Holmes, Robert Jackson, Susan Murtty, Salome Rabeim, Judith Rinehart

Assistant professors emeritae: B. Eleanor Anstey, E. Jean Williams

Adjunct assistant professors: Larry Allen, James Cone, Wendy Deutelbaum, Diane Dornburg, Greg Jensen, Paul Lambakis, Mirtam Landsman, Rebecca Monsma, Robert Oberbillig, Anita Richards, Janet Simons, Nicholas Tormey, Steve Trefz

Visiting assistant professor: Robert Vander Beek

Adjunct instructors: Mary Adams, Nancee Blum, Ev Brightman, Victoria Bruner, Paul Danforth, John Fairweather, Betty Grandquist, Dan Grinstead, Lois Hand, Mary Hubbard, Lance Kinseth, Elizabeth Kudsk, Jean Mann, Hermine McLellan, Barbara Miller, Pam Moore, Mary Newcomb, Linda Peterson, Joy Sutter, Lisa Walz, Donald Weight

Clinical instructor: M. (Billie) Marchik

Visiting instructor: Betty King

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 aimed at developing effective intervention in multiple systems and using professional social work values and ethics.

Undergraduate Program

The Bachelor of Arts and B.S. degree program prepares students for beginning professional social work practice as generalists. The goals of the program are to prepare students for employment in public and private social services in home and community based settings such as public welfare, child welfare, health, mental health, elderly services, and corrections; to prepare students for informed community participation in social welfare issues; and to provide a base for graduate study in social work or allied professions.

The program is accredited by the Council on Social Work Education.

Selective Admission

A limited number of students are admitted to the major. The application deadline is April 1. Admission to the undergraduate program in social work requires:

- completion of 42 credits including Introduction to Social Work with a grade of C or higher (should be taken the sophomore year);
a cumulative grade-point average of at least 2.50; (exceptions may be made for persons who do not meet the grade-point average requirement if they are strong candidates on the basis of other criteria); and completion of application forms and statement.

Meeting these requirements does not guarantee admission. Admission often is limited by available instructional resources and opportunities for field placement.

For more information about admission policies, contact the school’s undergraduate coordinator.

The School of Social Work seeks to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives.

Curriculum

Undergraduate students majoring in social work must complete the College of Liberal Arts General Education Program. The General Education Program requirement in natural sciences should include 2:21 Human Biology. The minimum requirements for a B.A. in social work include the following:

- Social work courses (culminate with a field experience) 35 s.h.
- Concentration area courses (see list of areas) 12 s.h.
- Social science courses (total of 12-15 s.h.):
  - 30:1 Introduction to American Politics 3 s.h.
  - 34:1 Introduction to Sociology: Principles 3-4 s.h.
  - A basic economics course 3-4 s.h.
  - 31:1 Elementary Psychology 3-4 s.h.
  - 31:3 General Psychology 4 s.h.
- The School recommends that required course work be taken in the following sequence.

Freshman/Sophomore Years

- 30:1 Introduction to American Politics 3 s.h.
- 31:1 Elementary Psychology 3 s.h.
- 31:3 General Psychology 4 s.h.
- 34:1 Introduction to Sociology: Principles 3-4 s.h.
- 42:22 Introduction to Social Work 4 s.h.
- A basic economics course 3-4 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 of approved courses)
- 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.

Concentration Area

The undergraduate program requires a minimum of 12 semester hours of course work in one area listed below. Most students choose either sociology or psychology. Students who wish to meet this requirement in an area not listed must present a written request and rationale to the faculty adviser and undergraduate coordinator. Courses used to meet General Education Program requirements do not count toward the 12 semester hours, nor do the specifically required social science courses.

- African American world studies
- Ageing 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

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

- Admission to the School of Social Work is by application; the four-year graduation plan does not apply to students who are not admitted by their fifth semester.
- Before the third semester begins: at least one-quarter of the semester hours required for graduation
- Before the fifth semester begins: 42:22, four courses that can be applied to the major (may include concentration area), admission to the major, and at least one-half of the semester hours required for graduation
- Before the seventh semester begins: six more courses in the major and at least three-quarters of the semester hours required for graduation
- Before the eighth semester begins: four or five more courses in the major and finalized field placement
- During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. A cumulative grade-point average of at least 3.20 is required for participation in the program, which enables students to do in-depth study in subjects that interest them.

Minor

A minor in social work requires a minimum of 15 semester hours of credit in social work courses with a grade-point average of 2.00 or higher. At least 12 semester hours must be taken at The University of Iowa in courses numbered 42:100 and above. Course work must include 42:22 Introduction to Social Work (or its equivalent at another institution), which is prerequisite to many upper-level social work courses.

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 requires 60 semester hours: 25 earned in foundation-level courses and 35 in advanced-level courses. Students who hold an undergraduate degree from a CSWE program receive 15 semester hours of advanced standing and earn the masters’ degree with 45 semester hours. All students must earn a minimum of 36 semester 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 undergraduate degree. Students who have completed equivalent foundation course work in departments or programs other than accredited social work programs must pass a qualifying exam for the particular foundation course(s) in order to receive partial advanced standing. Nine to 12 semester hours of graduate transfer credit may be allowed for previous graduate work.

The school operates a year-round, sequenced graduate 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 fall semester (August) on campus in Iowa City or in spring semester (January) at the Des Moines center. Part-time students go through the program more slowly, taking at least two courses each semester. Part-time students who need 60 semester hours complete the program in four years.

A special intensive program has been designed to enable students from Des Moines and the Quad Cities to attend classes in Iowa City during the summer.

Students must maintain cumulative grade-point average of at least 3.00; must be promoted each semester in compliance with the Student Advancement Policy; and must successfully complete a master’s comprehensive examination, which is 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.

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.
42:143 Social Welfare Policy and Practice 3 s.h.
42:146 Microcomputer Laboratory (for students in Iowa City) 1 s.h.
42:148 Social Work Research Methods (for students in Iowa City) 3 s.h.
42:150 Elective (for students in Des Moines) 3 s.h.

**Spring Semester**
42:145 Organization and Community Practice 3 s.h.
42:146 Microcomputer Laboratory (for students in Des Moines) 1 s.h.
42:147 Racism and Discrimination 3 s.h.
42:148 Social Work Research Methods (for students in Des Moines) 3 s.h.
42:150 Advanced Research (for students in Iowa City) 3 s.h.
42:270 Foundation Practicum in Social Work 3 s.h.
42:271 Foundation Practicum Seminar 1 s.h.

**Summer Session**
Electives (including preplacement field practice courses) 4-11 s.h.

**SECOND-YEAR CONCENTRATION**

**Fall Semester**
42:270 Advanced Research (for students in Des Moines) 3 s.h.
42:250 Family Systems Theories 3 s.h.
or
42:260 Integrated Practice Theories 3 s.h.
42:292 Advanced Practicum in Family Centered Practice I and II 5-6 s.h.
or
42:295 Advanced Practicum in Integrated Practice 5-6 s.h.

42:293 Advanced Practicum Seminar in Family Centered Practice I 1 s.h.
or
42:297 Advanced Practicum Seminar in Integrated Practice I 1 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 II 1 s.h.
or
42:298 Advanced Practicum Seminar in Integrated Practice II 1 s.h.

**Thesis or elective** 2-3 s.h.

**Concentrations**

After admission, students choose between two concentrations: family-centered practice or integrated practice.

**Family-Centered Practice**

This concentration prepares students to become clinical social work practitioners, working with individuals and families who experience problems that impair 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 family members, 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, to create 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 systems. 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 who do family-centered case management and community practice.

This concentration is designed for students who plan to work in settings where advanced generalist interventions are necessary, such as community and family-based agencies, rural settings, and complex organizations (hospitals, schools, and correctional facilities). In these settings, social workers function as team members and leaders and often must coordinate activities across different departments and agencies.

The integrated practice concentration is based on the person-in-environment concept 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 decision 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 School of Social Work maintains centers in Des Moines and the Quad Cities, Both offer regular academic work.

Des Moines is Iowa’s state capital and largest city. The Des Moines Center lies 115 miles west of Iowa City. The Quad Cities Center is located on the Mississippi River in Davenport, 60 miles east of Iowa City.

The full-time program is available in Des Moines as well as Iowa City. In addition, 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 their program. Some elective courses are available in the Quad Cities.

The part-time program is available at the Des Moines and Quad Cities centers as well as on the main campus in Iowa City. 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 begin 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 program comparable 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 Program in Urban and Regional Planning for joint degrees. Students must apply and be admitted to the law college or the planning program as well as to the School of Social Work. Up to 9 semester hours in each program are applied to requirements of the other, thus reducing the time it would usually take to pursue the two degrees separately.

Similar arrangements may be made individually with other departments. Other academic units in which social work students have pursued joint degrees include the College of Business Administration, College of Education, American Studies Program, School of Religion, and School of Journalism and Mass Communication. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Cooperative Programs

Graduates of accredited M.S.W. programs may be eligible for associate membership in the American Association of Marriage and Family Therapists (AAMFT) upon fulfilling certain curriculum requirements at the graduate level. Courses are not automatically accepted; graduates need to demonstrate that specific courses meet the AAMFT’s requirements, usually by sending course outlines.

The School of Social Work participates in the Aging Studies Certificate Program through the College of Liberal Arts. Students can earn the certificate concurrently with the M.S.W. program; they must apply independently to the Aging Studies Program coordinator.

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

A complete statement of graduate admission policies is available from the School of Social Work. Admission criteria are:

- a bachelor’s degree from an accredited college or university, with a reasonable distribution of courses in the liberal arts, including the humanities as well as the social, behavioral, and biological sciences;
- competence with word processing and spreadsheet application on personal computers;
- a 3.00 or higher grade-point average (on a 4.00 scale) for the junior and senior years of undergraduate study, or for 12 semester hours of letter-graded graduate course work (exceptions may be granted; consult the School of Social Work);
- a Graduate Record Examination (GRE) General Test score at or near the 50th percentile for the applicant’s reference group; three letters of recommendation, including one regarding academic abilities and one from the applicant’s most recent employer (if the employment was social work-related); and a personal statement addressing criteria specified by the School of Social Work.

Foreign applicants must score at least 600 on the Test of English as a Foreign Language (TOEFL).

Applications are accepted beginning September 1 and must be completed by February 1 to be considered for the next academic year. 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.

The School seeks to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives. Previous experience in the human services and cross-cultural experiences are desired.

Continuing Education

Nondegree students may enroll for selected courses and workshops through Saturday & Evening Classes in Iowa City and the School of Social Work centers in Des Moines and the Quad Cities. There are limits on the amount of graduate course work that may be applied to the master’s requirements for students who later enroll in the program.

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. Students may apply for a limited number of research and teaching assistantships available from the School of Social Work. Application materials for research or teaching assistantships are available from the school each spring, or as positions become available. Aid received through the Office of Student Financial Aid does not preclude students from consideration for aid through the School of Social Work.

Courses

Few courses are offered every semester, consult the current Schedule of Courses for availability of specific courses.

Primarily for Undergraduates

*Courses with numbers preceded by asterisks meet requirements of the M.S.W. program.

42:000 Cooperative Education Internship 0 s.h. Corequisite: 42:193.

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.

42:93 Intercultural Communication 3 s.h. Same as 30C:93.

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 consent of instructor.

42:167 Social Work Processes 3 s.h. Practice strategies for working with communities, small groups, families, individuals in community, organizational contexts; includes 40 hours of required volunteer experience. 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 corequisite.

42:191 Individual Study arr. Project related to student interest carried out under direction of faculty member. May be repeated.

42:192 Honors in Social Work arr. Supervised individual research. May be repeated. Open only to honors program students.

42:193 Field Experience arr. Supervised experience in selected social work 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.

42:108 Basic Aspects of Aging 3 s.h. Biological, social, and psychological aspects of aging; major topics include health, economic status, social participation, and social services. Same as 153:108.

42:112 Human Sexuality 1-3 s.h. Physiological, psychological aspects; parameters defined by students, instructor. Same as TC:112, 96:112.

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; etiological, psychological, physiological, legal, sociological aspects; treatment methods. Junior standing or above or 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 practice; roles, skills, conceptual frameworks, values, ethics; focus on integrated approach to practice, including assessment, intervention, evaluation of interventions, terminal, families, groups; emphasis on empirically based practice. Open only to social work students. Prerequisite: 42:22 or graduate standing or consent of instructor.

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.

42:149 Third World 3 s.h.
Social consequences of economic and political transformations; impacts of rural-urban migration; gender and ethnicity; forms and consequences of systems transformation. Same as 34:275, 44:275, 102:275, 113:275, 7F:275.

42:170 Field Work in Gerontology 2 s.h.
Opportunities for students in various disciplines to relate their areas of study to elderly aging; interdisciplinary relationships, approaches to aging, social work with elderly. Prerequisite: 44:130 or 44:184 or 96:129 or consent of instructor. Same as 153:185.

42:194 Social Work Practice in Health Care Settings 2 s.h.
Introduction to organization, provision of social work services in health care settings; practice issues involving individual needs assessment and program planning, family dynamics, service needs.

Behavior and development in context of social, ecological systems; social systemic theories and life span development theories, theories of psychosocial development. Open only to social work students. Prerequisite: 42:22 or graduate standing or consent of instructor.

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. Same as 153:184.

42:185 Social Policy and the Elderly 3 s.h.
Public social policies, their affect on well-being of elderly, including women and minorities; U.S. policies, those of other nations. Junior or higher standing required. Prerequisites: 42:143 and introductory course on aging (34:130, 42:184, 96:120), or consent of instructor. Same as 153:185.

42:199 Developmentally Disabled 2 s.h.
Problems, programming needs of disabled, their families; practice issues involving individual needs assessment and program planning, family dynamics, service needs.

42:200 Field Work in Gerontology 2 s.h.
Opportunities for students in various disciplines to relate their areas of study to elderly aging; interdisciplinary relationships, approaches to aging, social work with elderly. Prerequisite: 44:130 or 44:184 or 96:129 or consent of instructor. Same as 153:185.

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.
Practices, theory, practice; focus on relationship therapy and therapy as a 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 with 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 system theories compared to other theories of personal change; skill development in analyzing problems and theories and skill development in developing of hypotheses. 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 or consent of instructor.

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 complex interactions between human, organizational, environmental systems; organizational, community, 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 information 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 such as needs assessment, program evaluation, policy analysis, evaluation of social work practice. Open only to social work students. Prerequisite: 42:148 or equivalent.

42:271 Individual Study 2 s.h.
Project related to student interest; directed by faculty member. May be repeated. Graduate standing required.

42:272 Thesis 2 s.h.

42:274 Seminar: Social Change 3 s.h.
Social consequences of economic and political transformations; impacts of urbanization, migration, gender and ethnicity; products and consequences of systems transformation. Same as 7D:300, 34:274, 44:274.

42:275 Development Policy and Planning in the Third World 3 s.h.
Cross-cultural, interdisciplinary analysis of urbanization and development problems in developing nations. Same as 34:275, 44:275, 102:275, 113:275, 7F:275.

42:277 Organizational and Community Planning 2 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.

42:278 Personnel and Financial Management 2 s.h.
Human, financial resources required by communities and organizations for delivery of social services; skill development in personnel and financial management, microcomputer applications, evaluation of management outcomes. Prerequisite: completion of foundation courses or consent of instructor.

42:280 Human Behavior: Selected Aspects 2 s.h.

42:281 Social Work Practice: Selected Aspects 2 s.h.

42:284 Treatment Approaches to Substance Abuse and Dependency 3 s.h.
Same as 7C:285.

42:285 Travel/Study Seminar 2 s.h.
Prerequisite: 42:143 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. Prerequisite: 42:141, 42:142, 42:143, 42:144, 42:145, 42:146, 42:147, and 42:291.

42:291 Foundation Practicum Seminar 1 s.h.

42:292 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. Prerequisite: 42:141, 42:142, 42:143, 42:144, 42:145, and 42:146. Corequisites: 42:143, 42:144, 42:147, and 42:290.
Bachelor of Arts

The B.A. requires 27 semester hours of course work in sociology, including the following courses:

- 34:1 Introduction to Sociology: Principles
- 34:9 Sociological Theory
- 34:10-11 Theory, Research, and Statistics
- Electives (9 s.h. taken after 34:11) 15 s.h.

Students must take courses in the proper sequence. The two-semester sequence Theory, Research, and Statistics should be completed early, as preparation for the other sociology courses. Students also must complete three 100-level sociology courses (excluding 34:198 Directed Individual Study) after completing 34:9, 34:10, and 34:11.

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:

- 34:1 Introduction to Sociology: Principles
- 34:9 Sociological Theory
- 34:11 Theory, Research, and Statistics
- Electives (preceded by 34:10 or an introductory course in statistics) 3 s.h.
- Electives 15 s.h.

Students must take courses in the proper sequence. The statistics/methods courses (34:10 or other introductory statistics course, and 34:11) must be completed early, as preparation for the other sociology courses. Students also must complete three 100-level sociology courses (excluding 34:198 Directed Individual Study) after completing 34:9, 34:10, or equivalent, and 34:11.

Four additional courses are required (14-15 semester hours):

- 22M:21-22 Calculus and Modeling I-II
- 22M:25-26 Calculus I-II
- 22S:120 Probability and Statistics
- 26:103 Introduction to Symbolic Logic
- 26:104 Introduction to Philosophy of Science

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. Whereas 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 must have transferred courses approved by a sociology adviser for credit in the major.

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.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Sequencing of upper-level course work is important to meeting the four-year plan.

Bachelor of Arts

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

Before the fifth semester begins: 34:1 or equivalent, and at least half of the semester hours required for graduation

Before the seventh semester begins: 34:9, 34:10, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 34:11 and two electives in the major

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

Bachelor of Science

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

Before the fifth semester begins: 34:1 or equivalent, 34:9, one sociology elective, and at least half of the semester hours required to graduate

Before the seventh semester begins: 34:10 or equivalent, 34:11, calculus I-II, one more sociology elective, and at least three-quarters of the semester hours required to graduate

Before the eighth semester begins: 22S:120 and two more courses in the major

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

Honors

The University Honors Program provides a stimulating and integrative educational experience for undergraduate majors who perform at a high level. To qualify for the honors program in sociology, students must have a grade-point average of at least 3.20 overall and in sociology courses.

The special requirements for an honors degree in sociology are completion of 34:100 Honors
Sociology and the 90 semester hours required for the J.D.

This cross crediting, 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 two areas of interest. Candidates also must pass comprehensive examination and write a dissertation.

Doctoral students take two comprehensive exams—one from list A, the other from list B, or C (list A has six standing committees, list B has two, as follows).

List A: social psychology; crime, law, and deviance; stratification; political sociology; organizations; and family

List B: theory, and methods

List C: an area not included in list A or B for which the student can identify an examining committee of three people, with both the area and the committee approved by the graduate committee

A detailed statement of regulations for graduate study 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 actually is used in a 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.

Financial Aid
The Department of Sociology offers four types of awards to graduate students: teaching assistantships, research assistantships, University of Iowa Fellowships, graduate Opportunity at Iowa Fellowships, and NSF Democratization Traineeships. 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.

Research Centers and 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.

Admission
Admission to graduate study in sociology usually requires an undergraduate grade-point average of at least 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), applicants 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.

Master of Arts
The M.A. requires 30 semester hours with a thesis or research paper, or 38 semester hours without. The program without thesis or paper is intended for students seeking a terminal degree and for whom a wider range of course content in sociology is appropriate.

All candidates for the M.A. must complete the following with grades of B or higher.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>34:201</td>
<td>History of Sociological Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:202</td>
<td>Theory Construction and Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:214</td>
<td>Introduction to Sociological Data Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:215</td>
<td>Sampling, Measurement, and Observation Techniques</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:216</td>
<td>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.

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. Requirements for the minor include 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 above). Students must take 34:9 before enrolling in at least two of the required 100-level courses. No course accepted toward the minor may be taken pass/nonpass.

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.

All candidates for the M.A. must complete the following with grades of B or higher.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>34:202</td>
<td>Theory Construction and Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:202</td>
<td>Theory Construction and Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:214</td>
<td>Introduction to Sociological Data Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:215</td>
<td>Sampling, Measurement, and Observation Techniques</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>34:216</td>
<td>Linear Models in Sociological Research</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

All new students are expected to attend a week-long orientation for teaching assistants before the beginning of classes. In addition, a practicum on teaching (34:382) is required for those who wish to teach their own courses.
Center for Crime, Law, and Social Control

This new center is developing an interdisciplinary research and teaching program for the study of crime, law, deviance, social control, and mental health. It sponsors a bimonthly colloquium series in crime, law, and social control, in which affiliates, graduate students, and outside speakers present their ongoing research, and a working-paper series in which members disseminate research papers to the academic community. The center also provides research support and a research infrastructure for faculty and graduate students and offers graduate research assistantships for interested students.

NSF Democratization Trainee Program

In collaboration with the University’s political science department, the Department of Sociology conducts a five-year trainee program funded by the National Science Foundation for the study of democratization and the development of democratic social and political systems.

Survey and Data Analysis

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 are 34:1, 34:2, and 34:120. All other undergraduate courses are open to freshmen with stated prerequisites.

34:000 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 3-4 s.h.
How individuals are organized into social groups, ranging from intimate groups to bureaucracies, and how these influence individual behavior; nature and interrelationships of basic social institutions, such as family, education, religion, economy. GE: social sciences.

34:2 Social Problems 3-4 s.h.
Emergence and distribution of selected social problems; alternative solutions; may include population, inequality, female-male relationships, racism, crime. GE: social sciences.

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.
Basic scientific concepts; emphasis on theoretical thinking, statement of researchable propositions, logic and meaning of proof operator in the research process; general issues in designing social research, including problems of sampling and measurement, analysis, presenting research data, interpreting research findings. Major in sociology or consent of instructor required. Prerequisite: 34:1.

34:11 Theory, Research, and Statistics 3 s.h.
Continuation of 34:10, which is prerequisite. Major in sociology or consent of instructor required.

34:100 Honors Proseminar 2 s.h.
Topic development for honors papers. Open only to sociology honors students. Offered spring semesters.

34:195 Senior Seminar 3 s.h.
Skill development and guidance in writing a paper that integrates theoretical and substantive knowledge; contemporary sociological issues. Prerequisites: 34:9, 34:10, 34:11, and two additional 100-level sociology courses; or consent of instructor.

34:196 Field Experience arr.
Supervised field experience in sociology; primarily for students participating in Washington Center internships. Consent of adviser required. Sociology major and junior standing required.

34:197 Teaching Internship 3 s.h.
Experience providing supervised support for instructors teaching basic courses in sociology. Open only to undergraduate teaching aides in sociology. Consent of instructor required.

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; department and graduate college requirements, program and career planning, interaction with faculty members, consideration of student interests and concerns; two semesters beginning in fall.

34:201 History of Sociological Theory 3 s.h.
Ideas of major 19th- and 20th-century social thinkers (e.g., Marx, Weber, Durkheim, Simmel, Mead). Graduate standing or consent of instructor required.

34:202 Theory Construction and Analysis 3 s.h.
Contemporary theories of social issues and nature of theory; theory's place in research, strategies of theory construction. Graduate standing or consent of instructor required.

34:203 Seminar: Sociological Theory 3 s.h.
Selected problems. May be repeated. Prerequisite: 34:201 or consent of instructor.

Statistics and Research Methods

34:184 Applied Sociology 3 s.h.
Evaluation of social programs through quantitative and qualitative methods; development of a study focus that culminates in an evaluation research proposal. Prerequisite: 22S:25 or 34:10.

34:214 Introduction to Sociological Data Analysis 3 s.h.
Statistical measures for descriptive methods and association; logic of statistical inference, hypothesis testing; background essential to understanding linear models, models for categorical data analysis. Prerequisite: introductory statistics or consent of instructor.

34:215 Sampling, Measurement, and Observation Techniques 3 s.h.
Research design; sampling designs and techniques; questionnaire construction, interviewing techniques; participant and nonparticipant observation; coding and preparation of data for analysis; measurement techniques, reliability, and validity. Prerequisite: 34:214 or consent of instructor.

34:140 Criminology 3 s.h.
Nature and causes of crime; the criminal justice process, corrections, deviance, crime prevention. Prerequisite: 34:1 or consent of instructor.
34:141 Juvenile Delinquency 3 s.h.
Delinquency as an individual and social problem; theories of the causes of juvenile delinquency; law enforcement and the juvenile court; methods of correction and prevention. Prerequisite: 34:1 or consent of instructor.

34:143 Women, Crime, and Deviance 3 s.h.
Sociological understanding of females as participants in and victims of crime and deviance, treatment of females in law and the criminal justice system; theoretical approaches to female crime and deviance, types of deviant behavior in women, female victimization, types and determinants of legal decisions regarding women. Prerequisite: 34:1 or consent of instructor.

34:145 Sociology of Corrections 3 s.h.
Analytical survey of history, structure, and function of the American correctional process. Prerequisite: 34:140 or 34:141 or consent of instructor.

34:146 Deviance and Control 3 s.h.
Basic theories of deviance and analysis of social control settings and mechanisms with emphasis on the relationship between social control efforts and social deviance. Prerequisite: 34:140 or 34:141 or consent of instructor.

34:148 Internship in Criminal Justice and Corrections 1-4 s.h.
Supervised field work in a criminal justice or correctional agency, with formal instruction in theory and technique. May be repeated. Sociology major and junior standing required. Prerequisite: 34:140 or 34:141.

34:149 Sociology of Criminal Law and Punishment 3 s.h.
Theories of crime law, criminal sanctions; philosophy of criminal sanctions and socio-legal theories of criminal law, classical sociological theories of criminal sanctions and punishment, contemporary theories of the development of imprisonment in industrialized countries, research on 20th-century criminal punishment; focus on the relationship between criminal law-punishment and other social institutions (e.g., economic, religious, political); criminal punishment in historical perspective. Prerequisite: 34:9.

34:240 Seminar: Criminological Theories 3 s.h.
Theories of crime causation and their relationships to the cultures in which they have functioned. Graduate standing or consent of instructor required.

34:244 Seminar: Selected Topics in Deviance and Control 3 s.h.
Critical analysis of current research; emphasis on theoretical contributions and methodological foundations. May be repeated. Graduate standing or consent of instructor required.

Family, Life-Style, Children, Aging

34:108 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 in social life cycle of women, implications for social institutions and processes; focus on contemporary United States. GE: cultural diversity. Prerequisite: 34:1 or 34:120. Same as 131:108.

34:130 Aging and Society 3 s.h.
Societal age structure; age-status and age-sex roles; correlates of aging; continuities and discontinuities during the life cycle; intergenerational relations; social policy regarding aging and the aged. Prerequisite: 34:1 or 34:120.

34:159 Families in Comparative Perspective 3 s.h.
Family systems in comparative and historical perspective; comparison of the American family with families in both modern and premodern societies. Prerequisite: 34:1 or 34:120.

34:161 The American Family 3 s.h.
Structure and process, change over the life cycle; interrelations with other institutions; household composition by social class and ethnic group. Prerequisite: 34:1 or 34:120.

34:162 Work and Family Institutions 3 s.h.
Contemporary problems in the integration of work and family life; origins of work-family conflict in process of industrialization; effects of job-family conflicts on mothers, fathers, children; cross-cultural differences in dealing with work-family conflict. Prerequisite: 34:1 or 34:2 or consent of instructor.

34:230 Sociology of the Family 3 s.h.
Review and evaluation of significant research traditions; identification of theoretical problems and data sources. Graduate standing in a social science or consent of instructor required.

34:233 Aging and Human Development 3 s.h.
General overview of age and aging as a social phenomenon; age stratification, social change, the life course, the aged as a social problem; selected topics, theoretical and methodological issues. Graduate standing in a social science or consent of instructor required.

34:269 Seminar: Selected Topics in Family Sociology 3 s.h.
Selected theoretical and methodological issues. May be repeated. Graduate standing in a social science or consent of instructor required.

Social Institutions, Social Change

34:22 Introduction to Social Work 4 s.h.
Social welfare as a social institution; settings and methodologies of social work practice; profession of social work; historical development of American social welfare and social work; minimum of 60 hours voluntary work. Sophomore standing or consent of instructor required. Same as 42:22.

34:151 Sociology of the Third World 3 s.h.
Analysis and measurement of development/underdevelopment; ideological perspectives on the Third World; the modern world system; selected issues in the study of social change in Asia, the Midwest, Latin America, Africa. Prerequisite: 34:1 or an introductory course in economics or anthropology or consent of instructor. Same as 113:151.

34:153 Public Opinion 3 s.h.
Role of public opinion in making public policy; formation and change of political attitudes and opinion; political ideology; measurement of public opinion; understanding opinion polls. Prerequisite: 34:1 or consent of instructor. Same as 30:171.

34:160 American Society 3 s.h.
American society in comparative perspective; its structure and integration; approaches to study of large, complex modern societies; institutional interrelationships, institutions as agencies of social control, institutional disregorgization as an effect of social change. Prerequisite: 34:1 or consent of instructor.

34:163 Comparative Sociology 3 s.h.
Comparative analysis of different societies or nations; focus on competing analyses of a selected topic (e.g., the rise of capitalism). Prerequisite: 34:1 or consent of instructor.

34:167 Sociology of Science 3 s.h.
The diverse ways in which science is practiced and studied; how scientists construct scientific knowledge and what constitutes bad science.

34:181 Sociology of Popular Culture 3 s.h.
Analysis of the cultural bases, impact, and implications of popular culture; relationships of popular culture and major social institutions; popular culture and social change; social uses of taste, cultures and publics. Prerequisite: 34:1 or consent of instructor.

34:211 Comparative and Historical Methods in Sociology 3 s.h.
Comparative and historical methods examined through methodological readings and evaluations of analyses; how theoretical concerns and historical-comparative evidence are brought to bear on organizational structures, institutional relationships, political conflicts, cultural patterns, social change.

34:310 Education and Social Change 2-3 s.h.
Role of educational institutions, in connection with political and economic structures, in social change; inclusion of theories of social change through case studies of educational systems in less developed nations. Same as 7F:210.

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, revolutions, 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, Taiwan; major theoretical issues in social change and development East Asian experiences in the mid-20th century.

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 or consent of instructor required. Same as 7E:275, 42:275, 44:275, 102:275, 113:275.

34:279 Seminar: Urbanization 3 s.h.
Problems arising from the increase in urban population and the relative decline in rural population; emphasis on Iowa and the Midwest. Graduate standing and consent of instructor required. Same as 7D:301, 30:324, 44:337.

Social Class, Inequality, Race, Organizations

34:150 Political Sociology 3 s.h.
Sociological analysis of political behavior and belief, group conflict and political process, group consensus, political institutions, power and policymaking systems; relationship of the political system to the social system. Prerequisite: 34:1 or consent of instructor.

34:155 Sociology of Race and Ethnicity 3 s.h.
Multidisciplinary study of intergroup relations, with emphasis on historical, sociological, and social psychological issues in the study of American minority groups. Prerequisite: 34:1 or 113:3 or consent of instructor.

34:156 Gender Inequality 3 s.h.
Gender relations in contemporary perspective; emphasis on social origins of gender categories, implications of gender status for collective and individual behavior; topics include inequalities in interpersonal behavior, the family and work organizations, family violence, sexual harassment, rape. Prerequisite: 34:1 or 120.

34:164 Organizations and Modern Society 3 s.h.
Approaches to the sociological study of economic and nongovernmental organizations; the role of power and authority within the organization, and between the organization and its environment. Prerequisite: 34:1 or 34:120 or consent of instructor.

34:165 Sociology of Work and Occupations 3 s.h.
Work commitment, prestige of occupations; occupational and professional careers; occupational groups and organizations; alienation; women, minorities, and occupational structures; capitalism and occupations. Prerequisite: 34:1 or 34:120 or consent of instructor.

34:166 Social Inequality 3 s.h.
Major theoretical perspectives for understanding inequality in economies, power, prestige; the magnitude of social inequality in the United States; sex and race inequality; trends in and causes of social mobility; selected consequences of social inequality. GE: cultural diversity.

34:250 Seminar: Political Sociology 3 s.h.
Selected topics. Graduate standing or consent of instructor required.

34:251 Seminar: The Welfare State 3 s.h.
Development and operation of western welfare states; parameters of and theoretical and methodological debates in the field: development of capitalist democracies; nature of the welfare state, variations in welfare states, theoretical and methodological approaches for researching the welfare state; class, gender, age, race.

34:252 Political Sociology 3 s.h.
Survey, with focus on individual political behavior, development and operations of the state (state policies and state institutions), collective political behavior and social movements.

34:253 Social Stratification 3 s.h.
Classical and contemporary theories; current research on the causes and magnitude of inequality in economics, power, and prestige; social mobility; critical issues in stratification. Graduate standing required.

34:255 Seminar: Social Stratification 3 s.h.
Selected theoretical and substantive issues. Graduate standing or consent of instructor required.

34:257 Labor Markets 3 s.h.
Sociological and economic theories and research concerning the regional/local labor markets, industrial sectors and the dual labor market, occupational/internal labor markets; other structural explanations of inequality. Graduate standing or consent of instructor required.

34:258 Seminar: Economy and Society 3 s.h.
Relationships between social classes and nation-states; historical experience of the United States: comparative perspective, especially regarding Western Europe.

34:268 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 mobility in the United States, with emphasis on race and sex differences. Graduate standing or consent of instructor required.
34:274 Seminar: Social Change 3 s.h.
Social consequences of economic and political transformations; impacts of rural urban migration; gender and ethnicity as the products and consequences of systems transformation. Same as 7D:300, 42:274, 44:274.

34:285 Complex Organizations 3 s.h.
Productivity, effectiveness, innovation, coordination, conformity, and satisfaction. Graduate standing or consent of instructor required.

34:286 Methods of Organizational Research 3 s.h.
Graduate standing or consent of instructor required.

Teaching
34:382 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 syllabs, lectures, discussions, exams. Advanced graduate standing and consent of instructor required.

Independent Reading and Research
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.

SPANISH AND PORTUGUESE
Chair: Maria A. Duarte
Professors: George De Mello, Roselyn M. Frank, Oscar Hahn
Associate professors: Walter Dobrians, Maria A. Duarte, Nora Gonzalez, Coleman Jeffers, Paula M. Kemplinsky, Philip W. Klein, Thomas E. Lewis, Kathleen Newman, Adriana MerkRodenas, Mario Santizo, Leslie Schirier, Diana Vazquez Irene Wherritt
Adjunct associate professor: Sue E. Otto
Assistant professors: Judith E. Liukin-Gasparro, Mercedes Martinez-Murcia, Francisco J. Sanchez
Clinical assistant professor: Ozzie D. Duque
Undergraduate degrees: B.A. in Spanish, Portuguese; minor in Spanish, Portuguese
Graduate degrees: M.A., Ph.D. in Spanish

The department provides course work for undergraduate and graduate majors in Spanish or Portuguese, for the satisfaction of foreign language requirements for baccalaureate and advanced degrees in other fields, and for the satisfaction of the second literature requirement for undergraduate majors in comparative literature.

Undergraduate Programs
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 acquisition of Spanish language skills in communicative contexts, enrichment of vocabulary through an introduction to Hispanic culture, and development of grammatical accuracy in speaking and writing.

Beginning courses in Portuguese are for students without previous study or experience with the language. 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 also incorporate cultural material in the form of videos and music.

Bachelor of Arts in Spanish
The undergraduate major in Spanish provides three programs of study, or tracks. Each focuses on some content area while facilitating students’ continued development of Spanish language skills. The goal of the Spanish major program is attainment of proficiency in Spanish and in-depth study of one of three areas: the literature and culture of Spain and Spanish America, Hispanic linguistics, or an interdisciplinary study of Latin America.

Students who major in Spanish may go on to graduate study in areas such as Spanish and Spanish American literature, Hispanic linguistics, or comparative literature. They also may combine their Spanish studies with other areas to prepare for career opportunities in international business, government, travel, or communications, where knowledge of a foreign language and of foreign cultures is essential.

Language and Linguistics Track
This track is designed for students interested in pursuing in-depth study of Spanish language and linguistics (the scientific study of language). It allows students to earn up to 12 semester hours in literature and culture or up to 6 semester hours in courses offered by the Department of Linguistics. It also allows the study of Portuguese. It 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.
Courses in Spanish, Spanish-American, Portuguese, or Brazilian literature or culture 6 s.h.
Courses in at least two of these three areas: Spanish language; Spanish linguistics; Portuguese language and linguistics 15 s.h.
Elective courses at the 100-level in either the Department of Spanish and Portuguese or the Department of Linguistics 6 s.h.

No more than 6 of the 34 semester hours required for the language and linguistics track may be taken in English. Either 38:100 or 38:101, but not both, may be counted toward the 34 semester hours.

Latin American Studies Track
The Latin American studies track is designed for students interested in pursuing the interdisciplinary study of Spanish-American and Brazilian literature on the basis of knowledge of both Spanish and Portuguese. Students who complete 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 (see “Latin American Studies” in the Catalog).

The track 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 chosen from 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.

Literature and Culture Track
This track is designed for students interested in pursuing in-depth study of Spanish and Spanish American literature, history, and contemporary society. Although study of both Spanish and Spanish America is required, students may concentrate on one or the other. They also may earn 10 semester hours in language and linguistics courses. 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 (at least 6 semester hours in the Spanish area and 6 semester hours in the Spanish-American area) 24 s.h.

No more than 3 of the 34 semester hours required in the literature and culture track may be taken in English.

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. At least 22 semester hours toward the requirements for the major in Spanish must be earned at The University of Iowa.

Elementary and Secondary Teaching Licensure in Spanish
Spanish majors interested in teaching Spanish at the elementary and/or secondary level must successfully complete the requirements for the Spanish major in either the language and linguistics track or the literature and culture track and must be admitted to the College of Education’s Teacher Education Program in foreign language. For more information, contact the College of Education, Division of Curriculum and Instruction.

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

Before the third semester begins: second-year, first-semester competence in Spanish and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: one course beyond second-year, second-semester competence in Spanish and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: a total of eight courses in the major

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

Honors in Spanish

Admission to the honors program in Spanish requires a grade-point average of at least 3.20 overall and in Spanish. Graduation with honors in Spanish requires, in addition to the course work for the three major tracks, 3 semester hours in 35:198 Honors: Research and Thesis, plus another 3-semester-hour course chosen in consultation with the department honors adviser. Students also must present an honors report in Spanish and participate in a meeting with a faculty committee, conducted in Spanish.

Minor in Spanish

A minor in Spanish requires 15 semester hours of course work in Spanish with a grade-point average of 2.00 or higher. At least 12 of the 15 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 fulfill 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 several study-abroad programs. Its summer programs include the State Board of Regents Hispanic Institute (Valladolid, Spain), the CIC Summer Program in Mexico, and the University Studies Abroad Consortium in San Sébastián, Spain. Included in the department’s semester or year-long programs are the CIEE Language and Area Studies Program (Alicante, Spain), the CIEE Language and Society Program (Seville, Spain), the CIEE Liberal Arts Program (Seville, Spain), the CIEE Business and Society Program (Seville, Spain), and the University Studies Abroad Consortium (San Sébastián and Bilbao, Spain). The department also participates in a spring semester program at the Universidad de los Andes in Mérida, Venezuela.

The following checkpoints list the minimum requirements students must complete in order to stay on the University’s four-year graduation plan.

Before the third semester begins: competence in first-year Portuguese and at least one-quarter of the semester hours needed for graduation

Before the fifth semester begins: competence in Intermediate Portuguese and at least one-half of the semester hours needed for graduation

Before the seventh semester begins: 2-3 additional courses for the major and at least three-quarters of the semester hours needed for graduation

Before the eighth semester begins: a total of seven courses in the major

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

Minor in Portuguese

A minor in Portuguese requires 15 semester hours of course work in Portuguese with a grade-point average of 2.00 or higher. At least 12 of the 15 must be taken at The University of Iowa or in a University of Iowa foreign study program in courses numbered 38:102 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.

For more information, contact the Office of Academic Programs in the College of Liberal Arts or Business Administration.

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 a 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 information about the Latin American
Courses for Undergraduate Nonmajors

Undergraduate students in other disciplines may meet College of Liberal Arts General Education Program requirements with 35:20 Contemporary Latin American Narrative and 38:20 Contemporary Brazilian Narrative, which are taught in English. Culture and Civilization of the Portuguese-Speaking World (38:114) also is approved for General Education and is taught in English. The department offers several other literature, film, and cultural survey courses of general interest that are taught in English.

Graduate Programs

Master of Arts in Spanish

The Master of Arts program in Spanish aims to develop the candidate’s oral and written language skills to a high degree of proficiency, to provide training in literary analysis and linguistic structure, and to provide a broad knowledge of representative works in principal areas of Hispanic literature and/or principal subfields of Hispanic linguistics. Candidates for admission to the M.A. program must have completed the equivalent of the undergraduate Spanish major with a grade-point average of at least 3.00 in course work for the major. The following course work is required (total of 36 s.h.).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:200</td>
<td>Foreign Language Teaching Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:250</td>
<td>Spanish language and linguistics</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>35:300</td>
<td>Spanish literature</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>35:380</td>
<td>Spanish-American literature</td>
<td>6 s.h.</td>
</tr>
<tr>
<td></td>
<td>Elective courses at the 200 level or the advanced 100 level (Spanish courses numbered above 35:170); no more than 6 s.h. may be taken outside the department</td>
<td>15 s.h.</td>
</tr>
</tbody>
</table>

LANGUAGE TOOL REQUIREMENT

M.A. candidates must complete the equivalent of one year of college-level study of any approved second foreign language; Portuguese is highly recommended. This requirement may be satisfied either by examination or through courses taken at The University of Iowa or another accredited university; such course work does not count toward the 56 semester hours required for the M.A.

Maximum Study loads

Maximum course registration is 15 semester hours of graduate-level course work during fall or spring semesters and 8 semester hours at the graduate level 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 not register for more than 12 semester hours in fall or spring semesters or for 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 Master of Arts.

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. One is dedicated to Hispanic literatures and one to Hispanic linguistics. In literary studies, students are trained in textual analysis and literary history, criticism, and theory. In linguistic studies, students are trained in linguistic analysis and theory.

Program I: Literature Track

The following course work is required (total of 72 semester hours).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>35:200</td>
<td>Foreign Language Teaching Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:250</td>
<td>Spanish language and linguistics</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>35:300</td>
<td>Spanish literature</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>35:380</td>
<td>Spanish-American literature</td>
<td>6 s.h.</td>
</tr>
<tr>
<td></td>
<td>Elective courses at the 200 level or the advanced 100 level (Spanish courses numbered above 35:170); no more than 6 s.h. may be taken outside the department</td>
<td>15 s.h.</td>
</tr>
</tbody>
</table>

Three (9 s.h.) of which may be taken in the Department of Modern Languages and Linguistics.

M.A. courses or equivalent transfer credits 36 s.h.

Two courses in Spanish literature, at least one of which must be medieval or Golden Age literature 6 s.h.

Two courses in Spanish American literature 6 s.h.

One course in literary theory numbered 200 or above 3 s.h.

Two 300-level seminars in literary studies 6 s.h.

35:299 Thesis 3 s.h.

Four 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 12 s.h.

LANGUAGE AND LITERATURE TOOL REQUIREMENTS

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; the study of Luso-Brazilian literature is highly recommended. This requirement can be satisfied only through course work at The University of Iowa or another accredited university. The equivalent of one year of college-level study of another approved foreign language also is required. If Portuguese is not the language chosen to fulfill the Romance literature requirement, it must be used for this requirement. Students who choose to write dissertations on topics in Spanish or Portuguese literature before 1700 must have the equivalent of one year of college-level Latin.

The language tool requirement may be satisfied either by examination or by course work at The University of Iowa or at another accredited university; language tool course work does not count toward the 72 semester hours required for the degree.

Program II: Linguistics Track

The following course work is required (total of 74 semester hours).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>103:110</td>
<td>Articulatory and Acoustic Phonetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:111</td>
<td>Syntactic Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:112</td>
<td>Phonological Theory and Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:121</td>
<td>Syntactic Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>35:299</td>
<td>Spanish and Portuguese Courses</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

One course in advanced Spanish syntax 3 s.h.

One course in advanced Spanish phonology 3 s.h.

One course in comparative Romance linguistics 3 s.h.

Two additional courses in linguistics (may be taken in the Department of Linguistics) 6 s.h.

Two 300-level seminars in Spanish linguistics 6 s.h.

35:299 Thesis 2 s.h.

LANGUAGE TOOL REQUIREMENT

Candidates in the linguistics track must complete the equivalent of one year of college-level study of Latin, the equivalent of three years of college-level study of Portuguese, and the equivalent of two years of college-level study of a third approved foreign language. These requirements may be satisfied either by examination or through course work at The University of Iowa or another accredited university. The language tool course work does not count towards the 74 semester hours required for the degree, except the third-year-level course work in Portuguese, which may count with approval of the faculty adviser.

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 linguistics to enter the profession as a teacher-scholar. The examining committee is composed of five departmental faculty members or four departmental faculty members and a fifth faculty member from a related department.

The Ph.D. comprehensive examination is administered in both written and oral parts. The
Facilities

The Language Media Center (LMC) provides students and faculty with a broad range of services and facilities that include a state-of-the-art audio language laboratory, individual audio recording carrels, video viewing rooms for small groups, video viewing stations for individuals, and networked microcomputer and interactive multimedia workstations. The LMC maintains a number of instructional technology classrooms that have special video, audio, and computer equipment for in-class presentations. The center’s extensive collection of international media resources on audio tape, videotape, computer diskette, videodisc, and CD-ROM serves learners at many levels and in many disciplines.

Courses

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.

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 Program 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. Theses credits count toward graduation but not toward a major or minor in Spanish. Contact the Liberal Arts Office of Academic Programs or see the Catalog for more information.

Spanish—For Health Professionals I 3-4 s.h.

Intensive conversation; basic vocabulary for communicating with Spanish-speaking patients; sociocultural aspects of Hispanic culture; emphasis on speaking proficiency. May be taken in place of 35:1 to satisfy GE: foreign language.

35:11 Intermediate Spanish I 3-4 s.h.

Review of first-year Spanish grammar, emphasis on oral and written communicative skills; continuation of Spanish: GE: foreign language. Prerequisite: 35:1 or equivalent.

35:12 Intermediate Spanish II 3-4 s.h.

Continuation of 35:11. GE: foreign language. Prerequisite: 35:11 or equivalent.

35:13 Accelerated Intermediate Spanish 6 s.h.

The 35:11-12 sequence in one semester. GE: foreign language. Consent of Spanish GE coordinator required. Prerequisite: 35:2 or equivalent.

35:20 Contemporary Latin American Narrative 3 s.h.

Themes and narrative techniques in major texts, 1960-present; overview of cultural, sociopolitical aspects; taught in English, readings in English. GE: foreign civilization and culture or humanities. Prerequisite: 8G:1.

35:36 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. Taught in English. Same as 113/20.

35:53 Special Work 1-3 s.h.

Spanish—For Undergraduates and Graduates

35:100 Regents Hispanic Institute 3 s.h.

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: 35:2 or equivalent.

35:103 Written and Oral Expression in Spanish 3 s.h.

Skill development in the four basic linguistic skills—oral comprehension, speaking, reading, writing; communication-oriented course for third-year students. Prerequisite: 35:12 or equivalent.

35:105 Latinos in the United States 3 s.h.

Acquisition of cultural and communicative proficiency, with emphasis on oral proficiency, conversation skills; focus on issues affecting Latinos in the United States. Prerequisite: 35:12 or equivalent.

35:107 Advanced Spanish Language 4 s.h.

Detailed points of grammar especially troublesome to English speakers; reading, composition, oral presentation, vocabulary. Prerequisite: 35:12 or equivalent.

35:108 Problems in Spanish Grammar 3 s.h.

Readings, discussion, vocabulary, grammar analysis, written practice; focus on difficult topics such as adjective placement, relative pronouns, 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 elements of Spanish language 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; meaning, historical linguistics, sociolinguistics, psycholinguistics. Prerequisite: one course in Spanish numbered above 35:102.

35:112 Spanish Phonology 3 s.h.

Articulatory description and phonetic transcription of Spanish sounds; how individual sounds are interrelated. Prerequisite: 35:111 or equivalent.

35:113 Structure of the Spanish Language 3 s.h.

Linguistic analysis of Spanish; focus on morphology, syntax, usage; their interrelationship in an explanatory system. Prerequisite: 35:111 or equivalent.

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 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.
246

Liberal Arts . Spanish and Portuguese

35:115 Methods: Secondary School Foreign
Language

35:134 Spanish-American Short Story
3 s.h.

Methods and materials demonstration; practice of teaching
techniques; organization of teaching. Same as 7S:116, 9:150,

35:116 Technical Communication

3 s.h.

Principles of technical writing as applied to reports, brochures,
newsletters, presentations; emphasis on creation of technical
reports, audience analysis. Prerequisite: one course in Spanish
numbered above 35:102.

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. Taught in English. Same
as 9:158, 13:123.

35:118 Business Spanish

3 s.h.

Clear, concise business writing; emphasis on linguistic and
cultural proficiency. Prerequisite: one course in Spanish
numbered above 35:102.

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: one course in
Spanish numbered above 35:102.

35:120 Techniques of Spanish-English
Translation

3 s.h.

35:137 Introduction to Chicano Literature and
Culture

35:165 Contemporary Spain

35:138 Survey of Twentieth-Century Puerto
Rican Literature

Interdisciplinary multimedia study of 20th-century Spare; history
and culture from Civil War to present through television,
cinema, Historiography, literary texts. Prerequisite: one course in
Spanish numbered above 35:102.

3 s.h.

35:169 Spanish-American Literature of Fantasy

Principal manifestations from 19th-century origins to
culmination in 20th-century masterpieces; analysis. Prerequisite:
one course in Spanish numbered above 35:102.

35:139 Spanish-American Poetry II

Basic principles of transformational syntax as applied to analysis
of Spanish syntactic structure; extensive syntactic analysis,
Prerequisite: 35:111 or equivalent.

3 s.h.

Development of the love theme in Spanish American lyric
poetry during Romantic, Modernist, Advant-Garde periods;
Mistral, Neruda, Paz, Cardenal. Prerequisite: one course
in Spanish numbered above 35:102.

35:141 Hispanic Institute: Language

3 s.h.

3 s.h.

35:121 Readings in Spanish Literature and
Culture

35:144 Introduction to Basque Language and
culture

3 s.h.

35:145 Latin America Cinema

3 s.h.

35:123 Screening Latin America

3 s.h.

Latin American film; histories of the four major national film
industries; aesthetic and political debates surrounding the New
Latin American Cinema movement of the 1960s and 1970s.
Prerequisite: 35:12 or equivalent.

35:124 Hispanic Institute: Culture

3 s.h.

Overview of geography, history (political, economic, social),
architecture, painting, music of Spain; readings, slides, video
and audio cassettes, visits to local sites of cultural significance.
Prerequisite: 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, with focus
on Spanish American literature. 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. Prerequisite: one course in Spanish
numbered above 35:102. Same as 38:118.

35:129 Hispanic Institute: Study/Life in Spain

1 s.h.

35:130 Spanish-American Civilization

3 s.h.

Pre-Columbian, colonial, modern periods; socioeconomic
structure, form of government, culture. Prerequisite: one course
in Spanish numbered above 35:102.

35:131 Contemporary Spanish-American Fiction

3 s.h.

Major 20th-century short-story writers and novelists (Asturias,
Borges,
Fuentes,
etc.) through
representative works. Prerequisite: one course in Spanish
numbered above 35:102.

35:132 Spanish-American Poetry I

3 s.h.

3 s.h.

Concept of national cultures examined through major texts in
literary and film history in one Latin American nation. May be
repeated. Prerequisite: one course m Spanish numbered above
35:102.

35:150 Spanish Civilization

3 s.h.

Political, religious, social, economic background; important
cultural, literary movements. Prerequisite: one course in Spanish
numbered above 35:102.

35:151 Renaissance and Golden Age Literature

3 s.h.

Introduction to literary questions of 15th to 17th centuries in
Spain; understanding of literary Spanish and cultural issues of
the period – end of the Feudal mind, beginning of individualism,
poetry, emergence of theater, crisis of empire. Prerequisite: one
course in Spanish numbered above 35:102.

35:152 Modern Spanish Literature

3 s.h.

Important trends from Romanticism to generation of 1927.
Prerequisite: one course in Spanish numbered above 35:102.

35:153 Don Quijote

3 s.h.

Close reading of Cervantes’ humorous novel about utopia and
alienation in early Modern Spain. Prerequisite: one course m
Spanish numbered above 35:102.

35:157 Survey of Spanish Literature I

3 s.h.

Introduction to basic texts from Medieval to 18th-century Spain.
Prerequisite: one course in Spanish numbered above 35:102.

35:158 Twentieth-Century Spanish Women
Writers

3 s.h.

Twentieth-century Spanish women writers; selected short stories
of Riera, Montero, de Moura, Fernandez Cubas, Roig, Ortiz,
Rodereda, supplemented by critical readings, journalistic
writings. Prerequisite: one course in Spanish numbered above
35:102.

35:159 Hispanic Fiction to Film

3 s.h.

Poetry as a literary genre, short history of its development, early
forms in Spanish America, poets from Modernism to present;
readings from writers including
Dario, Pablo Neruda,
Vallejo, Octavio Paz, J.L. Borges. Prerequisite: one course
in Spanish numbered above 35:102.

Major literary works of Spare and Spanish America as written
and as film. Prerequisite: one course in Spanish numbered
above 35:102.

35:133 Spanish-American Drama

Works of the last 30 years of the 19th century, up to the
outbreak of the Spanish Civil War; Realism, Naturalism,
generation of 1898, generation of 1913, generation of 1927.
Prerequisite: one course in Spanish numbered above 35:102.

3 s.h.

Short history; leading 20th-century Spanish-American dramatists,
including Florencio
Villaurrutia, Usigli,
Cuzzani, Egon Wolff,
Jorge
Prerequisite: one
course in Spanish numbered above 35:102.

35:161 Masterpieces of Modern Spanish
Literature

35:174 Topics in Chicano-Puerto Rican Studies

3 s.h.

3 s.h.

3 s.h.

Chicanos and Puerto Ricans in the United States. Maybe
repeated. Prerequisite: one literature course in Spanish
numbered above 35:125.

3 s.h.

Main currents in 20th-century Hispanic Caribbean literature:
americanismo literario, poesía negra, testimonial narrative
centered on slavery and women’s fiction; Caribbean cultural
context in music, choteo, Afro-Cuban rituals. Prerequisite: one
literature course in Spanish numbered above 35:125. Same as
48:160.

35:176 Latin American Studies Seminar

Latin American film; histories of the four major national film
industries; aesthetic and political debates surrounding the New
Latin American Cinema movement of the 1960s and 1970s.
Taught in English. Same as 36F:107.

35:148 National Literatures and Cinemas

35:171 Spanish Syntax

35:175 Cultural Identity in Caribbean Literature

Journalistic, literary, technical texts. Prerequisite: 35:107 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.

3 s.h.

Social, cultural, literary developments from 1898; role of Puerto
Rican diaspora in literature and “Newyorican” writing in
context; island and mainland authors. Prerequisite: one course
m Spanish numbered above 35:102,

Experiences of Cuban exiles m United States; emergence of a
literature based on sense of dispossession, marginality, memory
of island past. Taught m English. GE: cultural diversity.
Prerequisite: 8G:1 or equivalent. Same as 48:196.

Tools for improving reading skills; basic concepts for textual
understanding; historical overview of literary works, with focus
on Spanish literature. Prerequisite: 35:12 or equivalent.

3 s.h.

3 s.h.

Recent fiction and poetry by Chicano and Chicana writers.
Taught in English.

35:143 The Daring Ones: Cuban-American
Literature

3 s.h.

3 s.h.

Focus on 20th century; how women subjects view themselves
in looking glass of literature; textual practice specific to women;
psychoanalytic approaches, contemporary feminist criticism.
Prerequisite: one course in Spanish numbered above 35:102.

Grammar essentials, written exercises, short compositions,
conversational activities. Prerequisite: 35:12 or equivalent,

3 s.h.

35:162 Latin American Women Writers

Works by 19th and 20th-century Spanish-American male and
female writers; emphasis on reading strategies and historical,
cultural, literary backgrounds. Prerequisite: one course in
Spanish numbered above 35:102.

3 s.h.

Interdisciplinary approach. May be repeated. Recommended:
Spanish or Portuguese sufficient for background readings, Same

35:177 Social History of the Romance Languages

3 s.h.

Evolution of Romance languages from Roman Empire to
present; emphasis on the sociopolitical context in which spoken
Latin of the Roman Empire evolved into Romance languages.
Prerequisite: 35:111 or equivalent.

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. Prerequisite: two courses in
Spanish numbered above 35:12.

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
genres. Prerequisite: one literature course in Spanish numbered
shove 35:125.

35:182 Spanish Picaresque Literature

3 s.h.

Major texts on the Spanish Golden Age’s antihero; rogue and
pseudo-autogaphical narratives; questions of poverty, social
mobility in beginning of modern Spanish society; male, female
social offenders; Lazarillo de Tormes,
de Alfarache, La
hija de Celestina. Prerequisite: one literature course in Spanish
numbered above 35:125.

35:185 Colonial Spanish American Literature

3 s.h.

Literature of 16th to 18th centuries, particularly
of
discovery, conquest of the New World, and recent critical
studies of this period. Prerequisite: one literature course in
Spanish numbered above 35:125.

35:187 Spanish-American Dialectology

3 s.h.

Analysis and comparison of selected morpho-syntactic aspects of
the dialects of several Spanish American countries; basic
historical issues of Spanish American dialectology [regional and
social dialects, dialect zones, peninsular dialect base, etc.).
Prerequisite: 35:109 or equivalent.

35:188 History of the Spanish Language

3 s.h.

Development of phonetic, morphological, syntactical properties
of the Spanish language; emphasis on internal history and
process of expansion from a minor dialect (Castilian) to a
significant world language. Prerequisite: 35:111 or equivalent.

35:189 Research in Sociolinguistics

3 s.h.

Formulating a research problem; basic types of research designs,
methods, strategies; ethnographic research methods, including
participant observation, life histories, domains, taxonomies;
preparation of results for presentation, publication. Prerequisite:
35:111 or equivalent. Same as 38:189.

35:190 Chicano Cinema

3 s.h.

History of Chicano independent and industry film and television
production since the Chicano political and cultural movement
began in the 1960s. Taught in English.


35:192 Topics in Spanish Language 3 s.h.
In-depth study of selected binary contrasts in Spanish syntax to determine the key that enables native Spanish speakers to choose correctly between the two members of each contrast. Prerequisite: 35:109 or equivalent.

35:193 Spain, 1700-1868 3 s.h.
Eighteenth-century Spanish enlightenment; Bourbon’s reforms, bourgeois revolutions; new theater; writers, politicians; redenomy of America; Spanish romanticism, fate of liberalism. Prerequisite: one language course in Spanish numbered above 35:125.

35:196 Principles of Course Design for Second-Language Instruction 3 s.h.
Same as 78:197.

35:198 Honors: Research and Thesis 2-3 s.h.
Open only to honors students.

35:199 Special Work 1-3 s.h.

**Spanish – Primarily for Graduates**

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, error correction, drills, equipment overheads, videos, computers); teaching difficult grammar areas.

35:201 Testimonial Literature in Latin America 3 s.h.
Concept of the testimonio or socioliteratura genre, authorial function, social context, reception of texts; ideology, subjectivity.

35:203 Topics in Graduate Spanish Language 3 s.h.
In-depth study of selected binary contrasts in contemporary Spanish syntax to develop a basic theory for each contrast; extensive exercises for practical application of the theory; no formal linguistic format.

35:204 Graduate Spanish Linguistics 3 s.h.
Goals and concepts of generative linguistics as applied to Spanish; main subfields of linguistics; skill development in linguistic analysis, argumentation.

35:205 Topics in Graduate Foreign Language Pedagogy 3 s.h.
Theoretical and practical studies on the teaching of literature; pedagogical approaches; observation of literature classes; formulating a research problem; designing, carrying out a research study. Prerequisite: 35:200 or consent of instructor.

35:207 Topics in Comparative Romance Linguistics 3 s.h.
Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Maybe repeated. Prerequisite: 35:204 or equivalent. Recommended: additional graduate course work in linguistics. Same as 20:201, 103:262.

35:209 Spanish Phonology 3 s.h.
Modern approaches to synchronic phonology as applied to Spanish; focus on traditional descriptive problems, recent generative analyses. Prerequisite: course in phonology or linguistics.

35:210 Advanced Spanish Syntax 3 s.h.
Spanish syntactic constructions examined in framework of selected syntactic theory; emphasis on development of syntactic argument. Prerequisite: 35:204 or equivalent. Recommended: additional course work in syntax.

35:211 Language Acquisition Theories 3 s.h.
Applicability of current linguistic theoretical models to acquisition of Spanish, both as a native and as a second Language; similarities, differences between first and second language acquisition research.

35:219 Contemporary Translation Theory Survey 3 s.h.
Translation problems as seen by theoreticians such as Walter Benjamin, George Steiner, Andre Lefebvre, Paul de Man, Jacques Derrida and Walter Ong y Guaste. Same as 8W:219, 48:219.

35:221 Spanish-American Dialectology 3 s.h.
Basic tones; regional and social dialects; dialect zones, peninsular dialect base; indigenous influences, emphasis on syntax; theory, practical application through analysis of representative corpus of Spanish American speech.

35:222 Graduate Literary Analysis 3 s.h.
European, North American criticism; structuralism, poststructuralism; formalist, feminist, Marxist conceptions of art’s place in society; postmodern era; question of history/autonomy in Hispanic literature; theory, practice in Spanish, Spanish American literatures.

35:230 Spanish-American Narrative: Nineteenth Century 3 s.h.
Review of narrative, with emphasis on Romanticism.

35:231 Spanish-American Narrative: Modern and Regional 3 s.h.
Narrative of the first half of the 20th century.

35:232 Spanish-American Drama 3 s.h.
Theater from pre-Columbian era up to and emphasizing contemporary theater.

35:233 Spanish-American Poetry of the Twentieth Century 3 s.h.
Principal works of vanguard poets and characteristics of their poetry; Vicente Huidobro, Octavio Paz, Neruda, Garcia Lorca.

35:234 Spanish-American Poetry Before 1918 3 s.h.
European and Spanish-American forerunners of modernism; modernistic poetic motifs in verse and prose; early modernists; Rubén Darío; and flowering of modernism; death and transfiguration of the swan.

35:236 Contemporary Spanish-American Narrative 3 s.h.
Narrative from mid-20th century to present; emphasis on the Boom, post-Boom.

35:238 Nation and Narration in Latin America 3 s.h.
Nation information in Latin America examined through representative novels and travel books from 19th and 20th centuries; in contexts of emerging nationalism, critical studies on gender. Same as 48:258.

35:244 Short Story in Spanish America 3 s.h.
Development of genre and context of literary movements; writings from Argentina, Peru, Chili, Uruguay, Cuba, Mexico, Colombia. Puerto Rico, comparison with themes and forms of U.S. short stories.

35:245 Spanish-American Short Story of Fantasy 3 s.h.
Theories of Tzevat Todorov, Irene Nemirov on literature of fantasy; diachronic study of literature of fantasy, from Juan Montalvo’s *Canto del cable* to work of Buero Casares, Julio Cortázar; other authors including Rubén Darío, L. Uglineses, A. Nervo, J.L. Borges, A. Carpenter, C. Fuentes, C. García Márquez.

35:246 Women Writers of Latin America 3 s.h.
Same as 131:246.

35:247 Readings: Latin America History 3 s.h.
Questions that have preoccupied major Latin American historians of 19th and 20th centuries; constitutional organization, secularization of society, colonial heritage, race and nationality, the Indian, “Latin democracy,” cultural identity, social revolution, economic dependency and development. Same as 16:208.

35:248 Topics in Film Studies 3 s.h.
May be repeated.

35:250 Medieval Spanish Literature 3 s.h.
Representative works: El Poeo del Cid, El Romance Viejo, Milagros de Nuestra Señora, El Conde Lucanor, El Libro de Buen Amor.

35:254 Drama of the Golden Age 3 s.h.
Theater, spectacle, public entertainment; social conditions of Baroque theater in Spain; ideological, moral messages; Lope de Vega’s model for mass-oriented art, depiction of ideal society; heroes, transgressors; role of women.

35:255 Spanish Renaissance and Baroque Literature 3 s.h.
Critical analysis of social, moral, political function of literature in early modern Spain; Renaissance and Baroque poetry; La Celestina; pastoral literature; Don Quixote; narratives of the court; modern subjectivity; the question of genre.

35:256 The Picaresque Novel 3 s.h.
Spanish Renaissance, Baroque from perspective of the narratives of deception, moral crusis, aesthetic, social dimensions of a literary work; intertextuality, subjectivity; Lazarillo, *La vida de Francisco* by Quevedo, Cervantes, Salas Barbadillo, Castillo Solano.

35:258 Nineteenth-Century Spanish Novel 3 s.h.
Significant novels, critical literature, schools, movements.

35:259 Contemporary Spanish Fiction 3 s.h.
The post-Franco novel in Spain; literary “postmodernism” and relationships between Spanish literature, politics, and society since 1975; representative significant works.

35:261 Twentieth-Century Spanish Poetry 3 s.h.
Principal poets and their works, 1900 to present.

35:263 Twentieth-Century Spanish Drama 3 s.h.
Principal playwrights, trends to present day; works by Benavente, Garcia-Lorca, Casona, Buero Vallejo, Sastre.

35:269 Topics in Spanish-American Literature 3 s.h.
May be repeated.

35:280 Intellectual Backgrounds in Literary Periods 3 s.h.
Historical and social boundaries of speech types, languages, belief systems.

35:281 Introduction to Contemporary Literary Theory 3 s.h.
Major currents, how theories construct literary text, structuralist, semiotic, psychoanalytic, Marxist, reader response, feminist, reconstructive criticism. Same as 8:277, 48:217.

35:283 Literary Polemics in Spanish America 3 s.h.
Principal literary debates in Latin America from birth of national literatures to present; social, political significance of the different polemics as a test of individual, Latin American identity.

35:284 Types of Modern Criticism 3 s.h.
A contemporary literary theory, such as semiotics, Marxist literary theory, reconstruction, feminism. Same as 8:284, 48:284.

35:286 Colonial Spanish-American Literature 3 s.h.
Chronicles of the Conquest: close reading with focus on role of writing and operations of “othering”; balance between critical secondary sources and primary sources.

35:288 Special Work 3 s.h.
Consent of instructor required.

35:299 Thesis 3 s.h.

35:300 Seminar: Spanish Linguistics 3 s.h.
Same as 103:300.

35:301 Seminar: Spanish-American Narrative 3 s.h.

35:305 Seminar: Spanish Golden Age Literature 3 s.h.

35:306 Seminar: Nineteenth-Century Spanish Literature 3 s.h.

35:307 Seminar: Twentieth-Century Spanish Literature 3 s.h.

35:311 Seminar Cultural Studies 3 s.h.

35:312 Seminar: Politics of Representation 3 s.h.

35:313 Brazilian and Spanish-American Literature 3 s.h.
Same as 38:380, 48:470.

35:316 Topics in Latin American Film Literature 3 s.h.
Same as 36:303.

**Portuguese**

38:1 Elementary Portuguese I 4 s.h.
GE: foreign language.

38:2 Elementary Portuguese II 4 s.h.
GE: foreign language.

38:20 Contemporary Brazilian Narrative 3 s.h.
Novels, short stories, other narrative forms, beginning with realism of 1930s; cultural background of different periods, innovative literary approaches of writers through films, other media; GE: foreign civilization and culture or humanities. Prerequisite: 8G:1 or consent of instructor.

38:35 Special Work 3 s.h.
Consent of instructor required.

38:40 Accelerated Elementary Portuguese 0.5 s.h.
First-year course in one semester; comprehending, speaking, reading, writing modern Portuguese; emphasis on speaking: GE: foreign language.
SPEECH PATHOLOGY AND AUDIOLOGY

Chair: Richard R. Hurtig


Associate professors: James F. Curtis, Kenneth L. Moll, Hughlen L. Morris, Duane C. Spiezensbach

Assist professors: Charles V. Anderson, Ruth A. Bentler, Penelope K. Hall, Michael P. Karam, Jerald B. Moon, Donald A. Robin, Amy L. Weiss, Patricia M. Zewowski

Adjunct assistant professors: Fariborz Fesehingh, Carolyn J. Brown, Charles R. Felling, George B. Haskell, Geri Kain, Ronald C. Scherer, Gerald N. Zimmermann

Clinical associate professors: Toni D. Cikle, Maria C. Fix, Anne K. Gay, Diane P. Niebuhr

Assistant professor: Margie R. Crawford

Adjunct assistant professor: Carolyn C.J. Brown


Undergraduate degree: B.A. in Speech and Hearing Science

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 in clinical service, college and university teaching, and research concerned with speech, language, or hearing processes and disorders. The department also offers courses for students with vocational and professional goals in other fields — for example, engineering, psychology, education, speech, theatre arts, dentistry, and medicine — whose preparation may be enriched by the study of speech and hearing processes and their disorders. Advanced degree holders in this field provide clinical services for people with speech, hearing, or language problems in hospitals, community clinics, rehabilitation facilities, elementary and secondary schools, and private practice. They teach in colleges and universities and conduct research in laboratories concerned with communication processes and disorders.

All of the department’s professional programs leading to the M.A. 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 are not seeking careers in this field.

Course Requirements

The B.A. in speech and hearing science requires eight core courses offered by the department and seven cognate courses offered by other departments. Students may choose cognate courses that also fulfill the College of Liberal Arts General Education Program requirements. The requirements are as follows.

3:15 Introduction to Speech and Hearing Processes and Disorders

3:110 Phonetics: Theory and Applications

3:111 Basic Acoustics for Speech and Hearing

3:112 Anatomy and Physiology of Speech Production

3:113 Introduction to Hearing Science

3:116 Basic Neuroscience for Speech and Hearing

3:117 Psychology of Language

3:118 Language Development

7P:25 Elementary Statistics and Inference

or

7P:143/22S:102 Introduction to Statistical Methods

2:9 Basic Physics (with lab)

or

2:9/11 College Physics

3:1 Elementary Psychology

or

3:1 General Psychology

103:100 Introduction to Linguistics

One of these:

3:13 Introduction to Clinical Psychology

3:105 Personality

3:116 Psychology of Gender

3:163 Abnormal Psychology

3:4130 Aging and Society

4:120 Basic Aspects of Aging

One of these:

*3:14 Introduction to Child Development

3:103 Social and Personality

*3:114 Cognitive Development of Children

*7P:106 Child Development

3:166 Childhood Psychopathology

3:170 Behavior Modification

One of these:

*2:2 Introductory Animal Biology

*2:10 Principles of Biology I

2:21 Human Biology

*Courses marked with an asterisk are preferred.

In addition, students who have not had high school trigonometry must complete a college-level trigonometry course.

Transfer students must complete a minimum of 15 semester hours in departmental courses at The University of Iowa.

Students have the opportunity and are encouraged to obtain 25 hours of supervised clinical observation, a prerequisite for participation in clinical practicums at the
graduate level. This requirement is satisfied by completion of independent observations or required observations made for elective departmental courses.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: The major requires specific math and science competencies that may be satisfied with courses approved for the General Education Program.

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

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

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

Before the eighth semester begins: 12 courses in the major

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

**Honors**

The 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 grade-point average of at least 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.

**MA. 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. The required course work and thesis research typically take two years to complete.

**MA. 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:

- 3:116 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.

*An equivalent undergraduate course may satisfy requirements.

Also required are additional semester hours of practicum registration sufficient to meet supervised, direct clinical experience requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association and the Iowa license, and to provide broad supervised practicum experience.

**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 Disorders and Disabilities 2 s.h.
- 3:209 Language Disorders: Multicultural Issues 2 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.
- 3:231 Communication Problems Associated with Head and Neck Cancer 1 s.h.
- 3:233 Neurogenic Disorders of Language 2 s.h.
- 3:254 Neurogenic Disorders of Speech 2 s.h.
- 3:256 Swallowing Disorders 2 s.h.
- 3:237 Cleft Palate and Related Disorders 2 s.h.
- 3:260 Designing Assistive Devices 1-3 s.h.
- 3:262 Phonological Development and Disorders 2 s.h.
- 3:263 Stuttering 2 s.h.
- 3:300 Preceptorship in Augmentative Communication 1 s.h.
- 3:530 Seminar: Communication Disorders and Aging 2 s.h.
- 7E:104 Remedial Methods in Speech and Hearing 2 s.h.
- 49:125 Voice for the Actor 3 s.h.

**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 Disorders and Disabilities 2 s.h.
- 3:209 Language Disorders: Multicultural Issues 2 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.
- 3:231 Communication Problems Associated with Head and Neck Cancer 1 s.h.
- 3:233 Neurogenic Disorders of Language 2 s.h.
- 3:254 Neurogenic Disorders of Speech 2 s.h.
- 3:256 Swallowing Disorders 2 s.h.
- 3:237 Cleft Palate and Related Disorders 2 s.h.
- 3:260 Designing Assistive Devices 1-3 s.h.
- 3:262 Phonological Development and Disorders 2 s.h.
- 3:263 Stuttering 2 s.h.
- 3:300 Preceptorship in Augmentative Communication 1 s.h.
- 3:530 Seminar: Communication Disorders and Aging 2 s.h.
- 7E:104 Remedial Methods in Speech and Hearing 2 s.h.
- 49:125 Voice for the Actor 3 s.h.
Students preparing to become speech-language pathologists may elect to follow one of three specialty tracks: schools, hospitals and health agencies, and 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 schools 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:**

- 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.

Hospital and Health Agencies Track

**Required:**

- 3:212 Voice Disorders 2 s.h.
- 3:231 Communication Problems Associated with Head and Neck Cancer 1 s.h.
- 3:233 Neureogenic Disorders of Language 2 s.h.
- 3:234 Neureogenic Disorders of Speech 2 s.h.
- 3:236 Swallowing Disorders 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:**

- 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 Neureogenic 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.

**AUDIOL OGY 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 I 3 s.h.
- 3:241 Differential Diagnosis in Audiology 2 s.h.
- 3:242 Hearing Aids II 3 s.h.
- 3:246 Clinical Audiology 2 s.h.
- 3:247 Medical Audiology 3 s.h.

Advanced courses chosen from these:

- 3:243 Hearing Aid Assembly and Repair 2 s.h.
- 3:245 Pediatric Audiology 2 s.h.
- 3:248 Hearing Aids: Advanced Clinical Technology 2 s.h.
- 3:290 Advanced Objective Audiometry 2 s.h.
- 3:291 Central Auditory Disorders 2 s.h.
- 3:292 Advanced Rehabilitative 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 audiologists in Iowa and most other states:

- A master’s degree with professional emphasis in speech-language pathology or audiology
- Completion of an approved human relations component
- Completion of courses that cover the education of the disabled and the gifted and talented (e.g., exceptional persons, education of the gifted)
- Completion of the requirements in speech-language pathology or audiology and the 20-semester-hour 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; course work in the following areas must be completed to meet the professional education sequence:

  - Curriculum (e.g., reading, methods, curriculum development)
  - Foundations (e.g., philosophy of education, foundations of education)
  - Educational measurement (e.g., tests and measurements, measures and evaluations of instruction)
  - Educational psychology (e.g., educational psychology, counseling theories and techniques)
  - Special education (e.g., introduction to special education, exceptional persons, learning disabilities)
  - Child development (e.g., human growth and development, principles and theories of child development, history and theories of early childhood education)

  (General Education courses, e.g., introduction to psychology, sociology, history, literature, and humanities, do not meet the professional education sequence.)

**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 behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The program reflects the broad interests of its multidisciplinary faculty, whose members have diverse backgrounds in speech, language, hearing, engineering, physiology, physics, psychology, linguistics, and bioengineering. Faculty members are committed to an interdisciplinary approach to questions at every level of the speech and language production/perception system.

The purpose of the doctoral program is to provide the integrated knowledge necessary for a productive career in the field of speech-language pathology and audiology, communication science, and related areas.

The department encourages candidates with special interests, goals, or backgrounds to develop individualized programs of study. There are no required courses for the Ph.D.; rather, a program of study is developed by each student in consultation with a faculty committee. The course of study is developed from courses offered by the department, courses in other areas (e.g., physics, engineering, psychology, mathematics, statistics, physiology, neurology, anatomy, and others), and special reading and research experiences.

The following courses are offered by the department of Speech Pathology and Audiology primarily for Ph.D. students. (Students interested in specific areas of research and selected publication citations of the faculty are encouraged to write to the department.)
3:201 Principles of Voice Production 3 s.h.
3:218 Psycholinguistics 3 s.h.
3:219 Fundamentals of Laboratory Instrumentation 3 s.h.
3:220 Advanced Laboratory Instrumentation 3 s.h.
3:224 System and Signal Theory for Speech and Hearing Sciences 3 s.h.
3:230 Speech Perception 3 s.h.
3:250 Acoustics of Speech 4 s.h.
3:251 Biomechanics of Speech 4 s.h.
3:252 Physiology of Speech Production 5 s.h.
3:254 Psychoacoustics 3 s.h.
3:255 Psycholinguistics Laboratory 4 s.h.
3:256 Physiology of Hearing 4 s.h.

In addition, seminars offered by the department cover a broad range of topics relevant to doctoral study.

Students in the Ph.D. program usually are expected to register for research credit (3:590 Research) during each semester of residence and to register for and participate in 3:515 Proseminar.

Knowledge in each of the areas of hearing, speech, language, mathematics, statistics, computer science, and instrumentation is required of all students. Decisions regarding the extent of this knowledge and how it is obtained (e.g., course work or independent study) are made jointly by the student and the student’s faculty committee.

Doctoral students who have not written a master’s thesis must complete the equivalent of a master’s thesis project as well as the comprehensive examination. They also must successfully complete and submit a dissertation based on original research.

Admission, Appointments

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointments that supplement those specified by the Graduate College. A brief summary of department requirements is presented below. More detailed information is available from the 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 are considered only in special circumstances. Applications to begin study in the spring semester are considered only under special circumstances and only if received no later than the preceding November 1.

Admission to the Ph.D. Program

Completed applications should be received 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 session, November 1 for spring semester. However, applicants who want to be considered for graduate appointments must file the admission application by the deadlines specified under “Application for Graduate Appointments.” 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 only 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’ 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 through various state education agencies; and in supervised clinical practice in speech, language, and hearing services provided by the University Hospitals and Clinics Departments 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 departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities

Facilities in the Wendell Johnson Speech and Hearing Center include audiometric testing suites, diagnostic and remediation suites, equipment for diagnosis and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, physiologic, and perceptual studies of speech, and for audiologic, psychoacoustic, and neurophysiologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation 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 3 s.h.
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 director 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.

3:96 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. Prerequisite: 3:97.

3:99 Topics in Hearing, Language, Speech Processes and Disorders 1 s.h.
Contemporary issues. Offered spring and fall semesters. Consent of instructor required.
For Undergraduates and Graduates

3:110 Phonetics: Theory and Applications 2 s.h.
Basic concepts: description of speech sounds, dialect variations, language differences; development of phonetic transcription 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; resonant; sound and intensity; decibel; acoustic systems: transfer function, frequency response, linear and nonlinear systems; acoustic theory of speech production; acoustic characteristics of speech; acoustic characteristics of speech. Offered every spring semester and summer sessions of odd years.

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. Prerequisites: 3:110 or 103:110. 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 fall semesters and summer sessions of even years. Prerequisites: 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: consent of instructor. Same as 103:177.

3:117 Psychology of Language 3 s.h.
Theoretical, empirical investigations of linguistic behavior; behaviorist, rationalist models in context of formal linguistic structure; context of models of speech perception and production. Offered spring semesters. Prerequisite: 103:100 or consent of instructor. Same as 103:172.

3:118 Language Development 1-3 s.h.
Alternative models of language acquisition; empirical data describing language development from its prelinguistic roots through later development in adolescence. Offered fall semesters. Pre or corequisite: 3:111 or 3:117 or consent of instructor.

3:125 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; communication in children, adults. Offered fall semesters. Prerequisites: 3:115; 3:110 or 103:110; 3:112, 3:118, and 70:025; or equivalents or consent of instructor. Corequisite: 3:145.

3:126 Principles of Intervention 1-3 s.h.
Theoretical underpinnings of speech, language treatment procedures provided by speech language pathologists; historical perspective, current issues in management of individuals with speech, language, hearing disorders; focus on complexities among intervention methods regardless of disorder. Offered spring semesters. Prerequisites: 3:135; 3:113, 3:145; and 3:146 or consent of instructor. Pre or corequisite: 3:117.

3:140 Manual Communication 1 s.h.
Training in use of sign systems in manual communication.

3:145 Speech-Language Pathology I 1-3 s.h.
Speech sound 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.

3:146 Speech-Language Pathology II 1-3 s.h.
Disorders of disorders related to cranial-facial 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: 3:155; 3:110 or 103:110; and 3:112. Pre or corequisite: 3:116 or consent of instructor.

3:165 Communication Disorders and Aging 2 s.h.
Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communication and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech language pathologists and audiologists. Offered summer sessions of odd years. Same as 153:165.

3:185 Hearing Loss and Audiometry 4 s.h.
Introduction to professions of audiology; overview of hearing disorders, evaluation, treatment; basic pure-tone and speech audiometry. Offered fall semesters. Pre or corequisite: 3:113.

Consent of instructor required.

For Graduates

3:201 Principles of Voice Production 3 s.h.
Basic physical, physiological, pedagogical principles in understanding professional, nonprofessional, Impaired voice production; vocal anatomy; voice classification; control of loudness, pitch, register, quality, 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.
Continuous study of disorders resulting from phonological, semantic, pragmatic, and morphosyntactic deficits; receptive, expressive problems; special assessment and intervention procedures. Offered fall semesters. Prerequisites: 3:117, 3:118, 3:131, 3:136, 3:145, and 3:146; or consent of instructor.

3:207 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.
Disorders resulting from phonological, semantic, pragmatic, and morphosyntactic deficits; receptive, expressive problems; special assessment and intervention procedures. Offered fall semesters. Prerequisites: 3:117, 3:118, 3:131, 3:136, 3:145, and 3:146; or consent of instructor.

3:208 Communication Problems of Developmental Disabilities and Disorders 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: 3:155, 3:156, and 3:145; or consent of instructor.

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, sweep, timer, and models. Offered spring semesters of odd years. Consent of instructor required. Prerequisite: 3:219 or equivalent.

3:221 Instrumentation for Voice Analysis 2 s.h.
Use of photograhic, videostroboscopic, electromyographic, aerodynamic, acoustic analysis for assessment of vocal, respiratory function; use of techniques in conjunction with perceptual evaluation of voice. Offered summer sessions of even years. Prerequisite: 3:201 or consent of instructor.

3:222 Speech and Hearing Anatomy 3 s.h.
Laboratory course in anatomy of speech and hearing mechanisms; instruction in dissection techniques. Offered summer sessions. Consent of instructor required.

3:234 System and Signal Theory for Speech and Hearing Sciences 3 s.h.
Basic calculus; differential equations, convolution, system functions; principles of linear-system theory applied to speech, auditory research. Offered spring semesters of odd years. Prerequisite: introductory calculus.

3:235 Communication Problems Associated with Head and Neck Cancer 1 s.h.
Voice rehabilitation following 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.

3:236 Swallowing Disorders 2 s.h.
Physiology of normal, abnormal swallowing; assessment, treatment of swallowing disorders in adults. Offered spring semesters of even years. Prerequisites: 3:116, 3:135, 3:136, 3:145, and 3:146; or consent of instructor.

3:237 Cleft Palate and Related Disorders 2 s.h.
Nature, etiologies, principles of treatment of common disorders associated with cleft lip and palate, associated disorders. Offered spring semesters of even years. Prerequisites: 3:135, 3:136, 3:145, and 3:146; or equivalents or consent of instructor.

3:241 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.

3:242 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.

3:249 Rehabilitation Audiology 4 s.h.
Theory, procedures for assessment, rehabilitation of speech, hearing, language deficits of people with hearing impairment. Offered spring semesters. Prerequisites: 3:145 and 3:185, or equivalents.

3:254 Pediatric Audiology 2 s.h.
Theory, procedures for assessment, rehabilitation of pediatric populations; laboratory emphasis on test administration. Offered spring semesters. Prerequisite: 3:185 or consent of instructor.

3:266Hands-on work with components, fabrication of shells and earmolds, assembly of ITE hearing aids; repair of different types and models. Consent of instructor required.

3:244 Rehabilitation Audiology 4 s.h.
Theory, procedures for assessment, rehabilitation of speech, hearing, language deficits of people with hearing impairment. Offered spring semesters. Prerequisites: 3:145 and 3:185, or equivalents.

3:245 Pediatric Audiology 2 s.h.
Theory, procedures for assessment, rehabilitation of pediatric populations; laboratory emphasis on test administration. Offered spring semesters. Prerequisite: 3:185 or consent of instructor.

3:246 Clinical Audiology 2 s.h.
Theory, procedures for assessment of hearing loss in adult and pediatric populations; experience in test administration through supervised laboratory sessions. Offered fall semesters. Prerequisite: 3:185 or consent of instructor.
3:247 Medical Audiology 3 s.h.
Genetic, acquired, traumatic pathologies that affect auditory systems; nature, etiology, principles of assessment, treatment. Offered spring semesters. Prerequisite: 3:185 or consent of instructor.

3:248 Hearing Aids: Advanced Clinical Technology 2 s.h.
Recent advances in hearing aid evaluation and fitting procedures, innovative circuitry, related software; emphasis on clinical management of hearing aid clients through case studies. Offered fall semesters. Prerequisites: 3:240 or 3:242, or consent of instructor.

3:250 Acoustics of Speech 4 s.h.
Sound generation, propagation, radiation in human speech production; acoustic phonetics; analysis, synthesis, perception of speech. Offered fall semesters of odd years. Prerequisites: 3:111, 3:112, and a year of calculus; or consent of instructor. Same as 103:275.

3:251 Biomechanics of Speech 4 s.h.
Mechanics of air and tissue movement in speech production; muscle physiology and mechanics; computer simulation of articulatory and pharyngeal processes. Prerequisites: 3:111 and 3:112 or equivalents, and a year of calculus; or consent of instructor.

3:252 Physiology of Speech Production 5 s.h.
Current information, theory on physiological bases of speech production, emphasis on research techniques. Offered spring semesters of odd years. Prerequisites: 3:112 and 3:219, or consent of instructor. Same as 103:277.

3:254 Psychoacoustics 3 s.h.
Advanced topics, current research in auditory sensation, perception. Offered spring semesters. Prerequisite: 3:113 or consent of instructor. Same as 31:271.

3:255 Psychoacoustics Laboratory 4 s.h.
Analysis of stimulus generation equipment; replication of classical psychoacoustic experiments. Offered spring semesters. Coquisite: 3:254 or consent of instructor. Same as 31:272.

3:256 Physiology of Hearing 4 s.h.
Anatomy of auditory system; cochlear mechanics, electrophysiology of peripheral, central auditory nervous system; laboratory techniques used in study of ear. Offered fall semesters. Prerequisite: 3:113 or consent of instructor.

3:260 Designing Assistive Devices 1-3 s.h.
System design (hardware and software) useful in building augmentative and alternative communication devices for the profoundly impaired; opportunity to build systems for theoretical and/or applied purpose; interdisciplinary, clinical perspectives. May be repeated. Offered fall semesters and summer sessions. Consent of instructor required.

3:282 Phonological Development and Disorders 2 s.h.

3:283 Stuttering 2 s.h.
Issues, approaches to treatment of children, adults. Offered fall semesters. Prerequisites: 3:15, 3:112, and 3:145; or equivalents. Corequisite: 3:135 or equivalent; or consent of instructor.

3:290 Advanced Objective Audiometry 2 s.h.
Theoretical basis, instrumentation, and clinical applications of multifrequency tympanometry and otocoustic emissions measurement; biomechanical properties of auditory system; interpretation of clinical cases. Offered spring semesters of odd years. Consent of instructor required.

3:291 Central Auditory Disorders 2 s.h.
Assessment procedures used to enhance detection of site of lesion, including those beyond the standard audiological test battery, interpretation of clinical cases. Offered spring semesters of even years. Consent of instructor required.

3:292 Advanced Rehabilitative Audiology 2 s.h.
Current and developing procedures for assessment, habilitation of adults and children with hearing losses. Offered spring semesters of odd years. Consent of instructor required.

3:300 Professional Practice of Audiology and Speech-Language Pathology 0 s.h.
Topics in the general practice. Maybe repeated.

3:301 Practicum: Speech-Language Pathology arr.
Supervised clinical practice. May be repeated. Open only to M.A. professional emphasis students. Prerequisites: 3:135, 3:136, 3:145, and 3:146; or equivalents. Consent of instructor required.

Supervised clinical practice involving evaluation of individuals for speech or language impairments. Closed to professional M.A. speech-language pathology students. Consent of instructor required.

3:311 Practicum: Audiology arr.
Supervised clinical practice. May be repeated. Open only to M.A. professional emphasis-audiology students. Consent of instructor required.

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 for individuals with limited oral communication. Consent of instructor required.

3:501 Seminar: Topics in Speech-Language Pathology 2 s.h.
Current topcis related to speech, language, or 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; basic 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.

3:520 Seminar Developmental Language Disorders 2 s.h.
Critical issues, research; multicultural issues in service delivery; phonological approaches to speech sound disorders, single-subject designs in intervention, language assessment and remediation studies. May be repeated. Offered fall semesters and summer sessions. Consent of instructor required.

3:521 Seminar: Stuttering 2 s.h.
Theoretical issues, research literature. May be repeated. Offered spring semesters of even years. Prerequisite: 3:285 or consent of instructor.

3:523 Seminar Voice 2 s.h.
Research on normal and disordered voice production, perception; vocal abuse, fatigue, endurance; perceptual correlates of vocal pathologies; models of voice production; spastic dysphonia; assessment of voice improvement. May be repeated. Offered fall semesters. Prerequisite: 3:212 or equivalent.

3:525 Seminar Cleft Palate 2 s.h.
Current research, clinical topics related to assessment, management of speech problems associated with cleft palate and other disorders affecting velopharyngeal function. Offered summer sessions. Consent of instructor required.

3:526 Seminar Rehabilitative Audiology 2 s.h.
Theoretical issues, research literature. May be repeated. Offered spring semesters. Consent of instructor required.

3:528 Seminar: Neurogenic Communication Disorders 2 s.h.
Speech, language problems associated with neurological disorders. May be repeated. Offered spring semesters. Consent of instructor required.

3:530 Seminar Communication Disorders and Aging 2 s.h.
Emphasis on application of gerontology to speech-language pathology, audiology. May be repeated. Offered summer sessions of even years. Consent of instructor required.

3:532 Seminar: Speech Science 2 s.h.
Research, theory of acoustic, phonetic, perceptual processes of speech. May be repeated. Offered summer sessions. Consent of instructor required. Same as 31:370.

3:533 Seminar: Psycholinguistics 2 s.h.
Perceptual processing and language; discourse theory, pragmatics/functional communication, cognitive models of language. May be repeated. Offered spring semesters. Consent of instructor required. Same as 31:320.

3:535 Seminar: Psycholinguistics 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 loss. May be repeated. Offered summer sessions of odd years. Consent of instructor required.

3:537 Seminar: Clinical Audiology 2 s.h.
Selected topics. May be repeated. Offered summer sessions of even years. Consent of instructor required.

3:538 Seminar Auditory Physiology 2 s.h.
Topics of interest to group. May be repeated. Offered spring semesters of even years. Consent of instructor required.

3:590 Research arr.
Consent of instructor required.

SPORT, HEALTH, LEISURE, AND PHYSICAL STUDIES
Chair Bonnie Slatten
Professors: Susan Birell, Benjamin K. Hunicutt, Richard D. MacNeil, Kenneth E. Mohly, Michael L. Teague
Professors emeriti: Donald R. Casady, Margaret G. Fox, John A. Nesbitt
Associate professors: N. Peggy Burke, Gary F. Hansen, Christine H.B. Grant, Carolyn Lara-Brandt, David K. Leslie, Bonito Slatto
Associate professor emerita: Jeannette L. Scabill
Assistant professors: Stephen Goff, Kathleen F. Janz, Catriona Parratt, Dawn Stephens


Undergraduate degree: B.S. in Sport, Health, Leisure, and Physical Studies; minor in Sport, Health, Leisure, and Physical Studies
Graduate degrees: M.A., Ph.D. in Sport, Health, Leisure, and Physical Studies

The University of Iowa has awarded undergraduate and graduate degrees in leisure studies and in physical education and sports studies for many years. Graduates of the two departments have gone on to work in teaching, research, coaching, recreation therapy, health promotion, and administration and supervision of athletic programs, recreation systems, and universities.

The Department of Sport, Health, Leisure, and Physical Studies was created in 1993 by merging the Departments of Leisure Studies and Physical Education and Sports Studies. The new department contributes to the liberal education of students through the study of sport, health, and leisure and provides professional preparation for careers in sport, health promotion, and leisure.

Undergraduate Programs

The department offers the Bachelor of Science as well as a minor in Sport, Health, Leisure, and Physical Studies. B.S. students may choose from two specialization areas: professional preparation in recreation, and cultural studies in sport and leisure. A third specialization area, health promotion, is closed to new majors at least until August 1998.
Students who declared majors in programs of the old departments-leisure studies or physical education and sports studies—before the first day of class in fall 1994 have until August 1998 to complete those majors; see the 1992-94 General Catalog for program information.

Students who declared majors in the Department of Sport, Health, Leisure, and Physical Studies between July 1, 1993, and February 1, 1995, have until August 1999 to complete those majors. Students who have declared majors in the old departments also may choose a track in the new department and graduate with a bachelor’s degree in sport, health, leisure, and physical studies.

**COMMON CORE**

All students who declare a major in the Department of Sport, Health, Leisure, and Physical Studies are required to complete the following core curriculum with a grade of C- or above in each course before declaring a specialization in professional preparation in recreation, or cultural studies in sport and leisure. The core curriculum consists of the following courses.

One of these:
- 28:60 Leisure in Contemporary Society 3 s.h.
- 28:70 Perspectives on Leisure and Play 3 s.h.
- 28:72 Leisure and the Liberal Arts 3 s.h.
- 22S:2 Statistics and Society (6K:71, 28:60 Leisure in Contemporary Society 3 s.h.
- 28:177 Western World Sport: Greeks to Present 3 s.h.
- 28:130 Human Nutrition 3 s.h.
- 28:130 Human Nutrition 3 s.h.

One of these:
- 28:74 Inequality in Sport 3 s.h.
- 28:76 Psychological Dimensions of Sport 3 s.h.
- 28:177 Western World Sport: Greeks to Present 3 s.h.

Correspondence study courses may not be used to fulfill SHLPS common core requirements after a student has declared a SHLPS major. Students who transfer to The University of Iowa and wish to substitute courses they have taken at other institutions for any of the above courses must complete a Request For Transfer Course Waiver Form, available from the Undergraduate Office. Substitutions are granted only on the basis of duplication of course content. At least half of all credit in the major must be earned in residence at The University of Iowa.

Once the department’s common core curriculum is completed, students may declare an emphasis in one of the specialization areas. Information about each area is provided below.

**Professional Preparation in Recreation**

This specialization prepares students to assume professional positions dedicated to improving the quality of people’s lives through planned use of recreation and sport resources. This broad program encompasses two emphasis areas: therapeutic recreation, and leisure services.

**THERAPEUTIC RECREATION EMPHASIS**

Therapeutic recreation service (TRS) is a health-oriented professional field. It involves the use of recreation services to improve or maintain physical, mental, emotional, and/or social functioning, with the goal of helping people lead independent leisure lifestyles.

Comprehensive therapeutic recreation services involve a continuum of care, including:

- treatment that uses activities to remediate or rehabilitate functional abilities and to assist in diagnosis;
- leisure education that uses activities to help individuals acquire skills, knowledge, and attitudes that facilitate an independent lifestyle and avocational competence; and
- recreation that uses activities to enhance health, growth, development, and independence through intrinsically rewarding leisure behavior.

Populations most commonly served by therapeutic recreation specialists include the physically, mentally, or emotionally disabled; mentally delayed; incarcerated; chemically dependent or socially disadvantaged; and older adults. Therapeutic recreation professionals are commonly employed in settings such as long-term health care facilities, community recreation centers, state and community mental health institutions, general medical hospitals, physical rehabilitation centers, special recreation districts, correctional facilities, senior citizens’ community-based programs, facilities for the mentally delayed, facilities for the emotionally disturbed, and substance-abuse programs.

Therapeutic recreation emphasis students must complete the following course work.

**Professional Preparation Core**

28:60 Leisure in Contemporary Society 3 s.h.
28:61 Recreation Leadership and Programming 4 s.h.
28:150 Recreation Administration 3 s.h.
28:160 Introduction to Therapeutic Recreation 3 s.h.
28:190 Internship Seminar 1 s.h.

**Emphasis Requirements**

28:162 Therapeutic Recreation: Clientele 3 s.h.
28:164 Therapeutic Recreation: Rehabilitation 3 s.h.
28:191-192 Internship I-II 15 s.h.

**Guided Electives**

The National Council on Therapeutic Recreation Certification (NCTRC) requires that students complete the following supportive course work (18 semester hours) in order to be eligible to take the national certification examination. These are minimum requirements.

- Anatomy and physiology 3 s.h.
- Abnormal psychology 3 s.h.
- Human growth and development 3 s.h.
- Human services (i.e., aging studies, psychology, sociology, special education, social work, etc.) 9 s.h.

**LEISURE SERVICES EMPHASIS**

This emphasis prepares undergraduates to assume entry-level positions in the leisure services industry. Students who select this emphasis may be employed by organizations such as:

- government-managed recreation or park departments in cities, counties, states, and at the federal level;
- nonprofit youth service organizations;
- governing bodies serving sports, athletics, recreation, and natural resources management; and
- for-profit enterprises such as sports and recreation clubs, athletic associations, commercial recreation attractions, and services.

The curriculum focuses on the sociological significance of leisure and recreation in contemporary society; program planning and promotion; design, construction, and management of facilities; risk management; communication; and decision-making. The community/public sector track emphasizes skills in managing and funding publicly owned and operated facilities and is designed so that graduates may be certified. The private sector track emphasizes marketing and managing for financial profit.

Students whose emphasis is leisure services must complete the following course work.

**Professional Preparation Core**

28:60 Leisure in Contemporary Society 3 s.h.
28:61 Recreation Leadership and Programming 4 s.h.
28:150 Recreation Administration 3 s.h.
28:160 Introduction to Therapeutic Recreation 3 s.h.
28:190 Internship Seminar 1 s.h.

**Emphasis Requirements**

28:191-192 Internship I-II 15 s.h.

Three of these:
- 28:151 Liability in Sport/Health/Leisure 3 s.h.
- 28:154 Park and Recreation Facility Management 3 s.h.
- 28:155 Recreation and Sport Management 3 s.h.
- 28:156 Design of Recreation Facilities 3 s.h.
- 28:158 Commercial Recreation Management 3 s.h.

**Guided Electives**

Twelve semester hours are required. This course work, chosen in consultation with the student’s adviser, usually includes courses in accounting, economics, management sciences, marketing, journalism and mass communication, communication studies, or urban and regional planning.

**Cultural Studies in Sport and leisure**

The focus of cultural studies in sport and leisure is on increasing knowledge about the cultural meanings of sport and leisure. Students in the program think critically about work and its relationship to sport and leisure, increase their understanding of sport and leisure in the contexts of culture and of individual lives, and develop their own scholarly ambitions in the discipline. The program is especially appropriate as preparation for graduate study. A minimum of 30 semester hours of course work beyond the common core is required, as follows.
Cultural Studies Program Core
28:70 Perspectives on Leisure and Play or
28:72 Leisure and the Liberal Arts
(3 s.h.
(students must choose the course not taken to complete the SHLPS common core)
28:60 Leisure in Contemporary Society
3 s.h.
28:173 Work and Leisure in American Culture
3 s.h.
28:177 Western World Sport: Greeks to Present
3 s.h.
28:178 History of Sport in the United States
3 s.h.

Program Electives
Students must choose two or more (6 semester hours) of the following.
28:74 Inequality in Sport
3 s.h.
28:117 Ancient Athletics
3 s.h.
28:128 Environmental Issues in Recreation
3 s.h.
28:136 Physical Activity and Aging
3 s.h.
28:175 Sport and the Media
3 s.h.
28:176 Women, Sport, and Culture
3 s.h.
28:193 Independent Study
arr.
28:194 Honors Readings
3 s.h.
28:195 Honors Problems
3 s.h.

Guided Electives
In consultation with their adviser, students must choose three (9 semester hours) from the following.
16:13 Issues in Human History: The Political Left in Modern History
3 s.h.
16:15 Issues in Human History: Gender in Historical Perspective
3 s.h.
16A:65 (129:65) Introduction to African American History
3 s.h.
16A:141 American Working Class to 1900
3 s.h.
16A:171 (131:171) Women in America: Colonial Period to 1870
3 s.h.
16A:172 (131:172) Women in America: 1870-Present
3 s.h.
16A:185 (129:189) Themes in African American History
3 s.h.
16 E:125 (131:181) Society and Gender in Europe 1200-1789
3 s.h.
34:1 Introduction to Sociology: Principles
3-4 s.h.
34:2 Social Problems
3-4 s.h.
34:130 Aging and Society
3 s.h.
34:155 (113:155, 129:114) Sociology of Race and Ethnicity
3 s.h.
34:156 Gender Inequality
3 s.h.
34:160 American Society
3 s.h.
34:163 Comparative Sociology
3 s.h.
34:166 Social Inequality
3 s.h.
34:181 Sociology of Popular Culture
3 s.h.
36C:80 Communication and Contemporary Culture
3 s.h.
36C:85 Communication and Conflict
3 s.h.
36C:87 (131:87) Gender Roles and Communication
3 s.h.
36C:110 Theories of Human Communication
3 s.h.
42:147 Racism and Discrimination
3 s.h.
42:184 Multidisciplinary Perspectives on Aging
3 s.h.
45:35 Race and Ethnicity in the U.S.
3 s.h.
45:40 (131:40) Gender in the U.S.
3 s.h.

45:70 Popular Arts and Entertainment in the U.S.
3 s.h.
45:90 Seminar in American Cultural Studies
3 s.h.
113:3 Introduction to the Study of Culture and Society
3 s.h.
113:14 Language and Human Behavior
3 s.h.
113:133 (129:133) Race and Cultural Identity in the U.S.
3 s.h.
113:155 (34:155, 129:114) Race and Ethnic Relations
3 s.h.
129:11 Contemporary Black Experience
3 s.h.
129:60 (16A:60) Introduction to African American Society
3 s.h.
129:61 (45:30) Introduction to African American Culture
3 s.h.
131:40 (45:40) Gender in the U.S.
3 s.h.
131:44 Lesbian Lives in the U.S.
3 s.h.
131:101 Introduction to Women’s Studies
4 s.h.
131:108 (34:108) Women and Society
3 s.h.
3 s.h.
131:140 (45:140) The Cultures of American Women
3 s.h.
131:150 Topics in Women’s Studies
3 s.h.
131:154 Anthropologies and Sexualities
3 s.h.
131:194 (8:194) Introduction to Feminist Criticism
3 s.h.

Four-Year Graduation Plan
The four-year graduation plan is not available in Sport, Health, Leisure, and Physical Studies.

Honors
The honors program is designed to serve the interests of superior students. It gives participants some research experience and a perspective on some aspects of graduate study. To be eligible for honors study in the Department of Sport, Health, Leisure, and Physical Studies, students must have declared a major in the department and must have at least a 3.20 grade-point average.
To qualify for the honors degree, students must successfully complete 28:194 Honors Readings and 28:195 Honors Problems, for which they must complete a reading or research project under the supervision of a departmental faculty member and write a paper summarizing the project’s results. Honor students also must maintain a grade-point average of at least 3.20 throughout the rest of their degree work.

Minor
Students who wish to minor in sport, health, leisure and physical studies must complete at least 15 semester hours in the department curriculum with a grade-point average of 2.00. Twelve of the 15 must be taken in advanced (100-level) courses at The University of Iowa. Students choose courses according to their interests and the recommendations of the undergraduate coordinator.
No courses accepted toward the minor may be taken pass/nonpass.

Options for Students Interested in Teaching
The department provides course work for teaching endorsement in health education and physical education, coaching endorsement, and coaching authorization. Students interested in any teaching option should contact the College of Education’s Office of Student Services.

Coaching Endorsement
Any student in a teaching licensure program may receive a coaching endorsement on his or her license by completing the following courses and applying through College of Education’s Department of Physical Education and Athletics.

Coaching Authorization
Any student in a nonteaching program may receive a coaching authorization by completing the following courses and making application directly to the Iowa Department of Public Instruction. Application forms for the coaching authorization are available at the Department of Sport, Health, Leisure, and Physical Studies office.

Specialization for Elementary Classroom Teachers
The following 24-semester-hour endorsement program satisfies requirements for elementary classroom teacher specialization in health education (K-6) and physical education (K-6).

27:53 Human Anatomy
3 s.h.
27:117 (7E:117) Human Growth and Motor Development
2 s.h.
27:45 Exercise Physiology for Practitioners
3 s.h.
27:31 First Aid and CPR
2 s.h.
28:82 Psychology of Coaching
2 s.h.
28:103 Administration of Physical Education and Athletics
2 s.h.
Therapeutic recreation relates to development and administration of programs that serve persons with mental or physical disabilities, the emotionally disturbed, and aged persons in both institutional and community settings. The program, directed toward understanding recreation's role in a comprehensive rehabilitation process, prepares students to work with a broad range of disability areas in either clinical or community settings. Students may develop specialization areas by taking related area courses. Emphasis is on applying research techniques and skills to solve problems in practical settings.

CULTURAL STUDIES IN SPORT AND LEISURE
Cultural studies in sport and leisure is an interdisciplinary program drawing on the insights of sociology, history, philosophy, and psychology. Its focus is on producing analyses of sport, health, leisure, and physical activity. Graduates often go on to doctoral study in sport and leisure studies or a related cultural field. Students take courses offered by the department and by other departments, such as American studies, communication studies, women's studies, history, psychology, and sociology.

SPORT AND LEISURE MANAGEMENT
Sport and leisure management prepares students for entry level positions in public, private, and commercial recreation and athletic administration. Internships in The University of Iowa’s women’s and men's athletic programs sometimes are available. The master’s degree also is excellent preparation for undertaking study toward the Ph.D. in administration and management.

Internships
Internships, available in several areas, are strongly recommended for students specializing in administration and management, therapeutic recreation, and health promotion.

Certification Examination
Master’s students specializing in therapeutic recreation and recreation management are eligible to take professional certification examinations. They should consult with a graduate adviser for guidance toward professional certification.

Assistantships
A limited number of teaching assistantships are available; applications should be made directly to the department chair. Teaching assistants generally teach Physical Education Skills courses, supervise practicum students, or support general education courses offered by the department.

Doctor of Philosophy
The Ph.D. is offered with three specialization areas: athletic administration, cultural studies in sport and leisure, and psychology of sport. Most students enter the doctoral program after completing a master’s degree. The Ph.D. entails 60 semester hours of course work beyond the master’s. All doctoral students must complete a total of at least 72 semester hours of graduate work, including general requirements for the master’s degree and credit for the dissertation. They also must satisfy the residency requirement by completing at least two semesters (minimum of 9 semester hours each) in residence at The University of Iowa.

REQUIRED COURSES
Doctoral students must take the following courses if equivalent courses have not been part of their master’s course work:

28:200 Historical and Philosophical Perspectives 3 s.h.
28:202 Critical Perspectives 3 s.h.
28:204 Research Methodologies 3 s.h.
28:300 Research Colloquium 0 s.h.

In addition, all doctoral students must complete a dissertation and take at least 3 semester hours of advanced research methodologies.

Specialization Areas
ATHLETIC ADMINISTRATION
Students in the athletic administration specialization prepare for administrative work at all levels within collegiate sport, including Division I. Many students have the opportunity to work in the women’s and men’s athletic programs at The University of Iowa.

CULTURAL STUDIES IN SPORT AND LEISURE
This specialization is an interdisciplinary program that explores sport and leisure with insights from sociology, history, and the humanities as well as interdisciplinary fields such as communication studies and women’s studies. Students develop their analytical skills in order to produce research and cultural criticism of sport, leisure, dance, and other related fields of physical activity. Careers in scholarship and teaching are the usual outcomes of such a curriculum.

PSYCHOLOGY OF SPORT
The doctoral program in psychology of sport provides students with the background and research skills to teach and pursue scholarship at the university level, or for careers in counseling and psychological coaching of athletes. Students take course work offered by the department as well as by related departments such as psychology, counseling psychology, and counselor education. Iowa’s program in psychology of sport is distinguished by its focus on psychological processes as they interact with other cultural processes.

Assistantships
A limited number of teaching assistantships and research assistantships are available. Teaching assistants generally teach University physical education courses; there also are a few opportunities to teach discussion sections of lecture courses. Applications should be made directly to the department chair.

Courses
28:000 Cooperative Education Internship 0 s.h.
28:1 Skill Acquisition in Physical Education 1 s.h., May be repeated.
28:2 Skill Acquisition in Physical Education 1 s.h., May be repeated.
28:10 Movement and Sport Skills 0-3 s.h.
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 Nontraditional 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 and fixed-weight training programs.
28:32 First Aid and CPR 2 s.h.
Leads to American Red Cross first aid and adult CPR certifications.
28:33 Promotional Strategies 3 s.h.
Methods, materials, graphics 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 and 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. GE: social science.
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. GE: humanities.
28:74 Inequality in Sport 3 s.h.
Sport experiences, barriers to participation based on sexism, racism, class, classism, agism, heterosexuality.
28:76 Psychological 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.
GE: fine arts or humanities. Same as 75: 112, 24:102, 97:1 15, 113:103.
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 1-4 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 dancing at elementary, secondary, college levels; observation of classes, lesson planning, evaluation procedures, materials, teaching aids. Prerequisite: 28:102.
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 78:158.
28:128 Environmental Issues in Recreation 3 s.h.
Issues related to outdoor recreation behavior, management; issues vis-a-vis ecosystem concept.
28:129 Practicum in Outdoor Recreation arr.
Adventure trips sponsored by Division of Recreational Services.
28:130 Human Nutrition 3 s.h.
Physiology, biochemistry of human nutrition; appropriate food sources; qualitative and quantitative evaluation of diets using standard references; simple arithmetic and computer skills required.
28:131 Nutrition 3 s.h.
Offered only through Guided Correspondence Study. Open only to nonmajors.
28:132 Fitness/Sport Nutrition 3 s.h.
Relationship between nutrition, fitness and sport performance; basic nutrition; physiology, chemistry, psychology, food preparation. Prerequisites: 7P:25 or equivalent, 28:130, and 72:130.
28:133 Nutrition Through the Life Span 3 s.h.
Flow body processes, nutritional needs change with age and the physiological state; effects of food-drug medication interactions, anorexia, bulimia, and adolescent pregnancy; emphasis on food and health habits that minimize nutrition related problems. Prerequisite: 28:130. Same as 153:133.
28:134 Nutrition Intervention 3 s.h.
Strategies for meeting unique nutritional needs of individuals with limitations imposed by genetics, trauma, aging, medications, and so forth. Prerequisite: 28:130.
28:135 Practicum: Health and Physical Activity 1-3 s.h.
Work with full time instructor teaching activity or fitness/wellness class; lesson planning, teaching, evaluation. Open only to majors. May be repeated. Prerequisite: one methods course.
28:136 Physical Activity and Aging 3 s.h.
Same as 153:136.
28:137 Health and Sport Fitness Assessment 3 s.h.
Examination, interpretation 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.
Health related components of physical fitness; assessment for field and clinical settings, exercise program design for healthy and high risk populations. Prerequisites: TP:25 or equivalent, and 27:140.
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: health promotion foundation.
28:142 Health Promotion in Corporate, Hospital, and Private Settings 3 s.h.
Development, operation of health promotion programs in corporations, hospitals, community outreach centers. Prerequisite: health promotion foundation.
28:144 Peer Health Education 2 s.h.
Experience acting as a peer educator, assisting students in their residential areas, presenting educational outreach programs on health topics, making referrals to campus and area agencies, and serving as a positive role model. 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. Same as 153:146.
28:148 Practicum in Health Promotion 3 s.h.
Experience in planning, implementing programs on health-related topic; nutrition, physical education, substance abuse, sexuality. Consent of instructor required. May be repeated.
28:150 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 programs, approaches to understanding, planning, national, international levels. Graduate standing or consent of instructor required.
28:153 Sports and Cultural Events Management 3 s.h.
Planning and managing events; resource management, liability, safety, special populations, philanthropy, promotion strategies.
28:154 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 and functions of managers; strategic planning, resource allocation; budget, income strategies; economics, sport, business. Prerequisites: 28:60.
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; entrepreneurship, new business formation, financial and risk management, inventory control, purchasing, marketing strategies, governmental regulation. Prerequisites: 28:60 and 28:155.
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, comitant development of recreation and leisure lifestyles; focus on developmental patterns of special populations. Prerequisite: 28:160.
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.
Development, implementation, instruction of exercise programs for special populations. Same as 153:166.
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. Same as 153:168.
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, roles, 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, what share leisure should and could have; changing American values.
28:175 Sport and the Media 3 s.h.
Representations of sport in television, the press, film, fiction, biographies, adolescent fiction.
28:176 Women, Sport, and Culture 3 s.h.
Feminist analysis of girls’ and women’s sport experiences; reproduction of gender through sport, recent changes in women’s intercollegiate athletics, media representations of women in sport, feminist critiques, alternatives to sport. Same as 131:153.
28:177 Western World Sport: Greeks to Present 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 issues; theoretical, practical applications.

28:181 Officiating Selected Sports 1-2 s.h.
Rules, rule interpretation, techniques of officiating.

Consent of instructor required.

28:190 PreInternship Seminar 1 s.h.

28:191 Internship I arr.
Practical field experience; direct leadership, program planning, administrative procedures. Consent of instructor required. Prerequisite: 28:190.

28:192 Internship II arr.
Continuation of 28:191. Consent of instructor required.

28:193 Independent Study Problem in a specific area. Consent of instructor required.

28:194 Honors Readings arr.
Consent of instructor required.

Consent of instructor required.

28:200 Historical and Philosophical Perspectives 3 s.h.
Development of attitudes toward sport, health, leisure; emerging program patterns; crisis; 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.

28:222 Seminar: Issues in Nutrition 3 s.h.
Current literature. May be 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.
Case and experimental study of management, behavioral constructs; 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, product 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 Procedures in Therapeutic Recreation 3 s.h.
Technical skills, current techniques in therapeutic recreation practice; application of research principles to daily practice, program administration. Consent of instructor required.

28:264 Therapeutic Recreation: Services 3 s.h.
Initiation, improvement, expansion of therapeutic recreation services for disabled persons; practice in program evaluation procedures; parallel practices in related fields. Consent of instructor required.

28:270 Social Psychology and Sport 3 s.h.
Social, psychological aspects of motor behavior; 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 U.S. 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 3-6 s.h.
Consent of instructor required.

Consent of instructor required.

28:292 Practicum in College Teaching arr.
Consent of instructor required.

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.

28:370 Seminar in Sport Psychology 3 s.h.
Current theory, research; applied sport psychology techniques. May be repeated. Prerequisite: 28:270.

28:372 Selected Issues in Sport Psychology 3 s.h.
Current issues, research related to social and psychological aspects of sport, exercise, physical activity. May be repeated. Prerequisite: 28:270.

28:374 Seminar in Sport History 3 s.h.
Graduate standing or consent of instructor required. 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 sport.

28:386 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: M.A. 1-6 s.h.
Consent of instructor required.

Consent of instructor required.

The world is filled with uncertainty. Decisions are made without full knowledge of how they may affect future events. Statisticians use the mathematical theory of probability and statistics to formalize the decision-making process. This involves constructing mathematical models for random processes that generate data. Important steps in constructing models are the collection and analysis of data obtained from designed experiments or observational studies. Statisticians can provide crucial guidance in determining what information is reliable and which predictions can be trusted. They often help search for clues to the solution of a scientific mystery and sometimes keep investigators from being misled by false impressions.

The work of a statistician may range from the theoretical to the applied. Regardless of the areas in which they work, statisticians need a strong background in mathematics and computer use. Because uncertainty and data arise in many settings, statisticians have the opportunity to work on many different kinds of projects for industry, government, and education. Statisticians serve in medicine, natural and social sciences, and business, education, and other fields where modern research techniques are used. This diversity of application is an exciting aspect of the field and is one reason for the continuing strong demand for well-trained statisticians.

Actuaries are business executives and professionally trained mathematical scientists who specialize in the evaluation of financial risk. Many actuaries are employed by insurance companies, where they are responsible for all phases of the development and maintenance of their company’s products. Other actuaries may work as consultants for companies that design pension and benefit plans and evaluate assets and liabilities. Actuaries also may work for the government, helping manage programs and regulate the insurance industry. A growing number of actuaries work for investment firms, in the area of asset/liability management. In return for their efforts, actuaries enjoy excellent working conditions. The latest edition of Jobs Rated Almanac ranked actuarial jobs as the best in the country.

## Undergraduate Programs

The Bachelor of Science can be earned in statistics (applied or mathematical) or in actuarial science.

### 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. Permission to substitute course work taken at another institution for required courses is granted case-by-case.
Statistics and Actuarial Science ● Liberal Arts

Computer Science

22C:7 Introduction to Computing with FORTRAN 3 s.h.
or 22C:16 Introduction to Programming 4 s.h.

Mathematics

One of these sequences:
22M:25-26 Calculus I-II 8 s.h.
22M:33-36 Engineering 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 III 4 s.h.
or 22M:55-56 Fundamental Properties of Spaces and Functions I-II 6 s.h.

Statistics and Actuarial Science

22S:130-131 Introduction to Mathematical Statistics I-II 6 s.h.
or 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: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 and 22S:162.)

At least two of these:
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:163 Nonparametric Statistical Methods 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:168 Analysis and Design of Experiments II 3 s.h.
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. Permission to substitute course work taken at another institution for required courses is granted case-by-case.

Mathematics

One of these sequences:
22M:25-26 Calculus I-II 8 s.h.
22M:33-36 Engineering 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:55-56 Fundamental Properties of Spaces and Functions I-II 6 s.h.

At least two of these:
22M:50 Introduction to Abstract Algebra I 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 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 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

At least two of these:
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: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 and 22S:162.)

Bachelor of Science in Actuarial Science

Actuaries achieve professional status by passing a series of examinations administered by the Society of Actuaries and the Casualty Actuarial Society. These examinations are quite difficult. Mastering the examination material requires tenacity and a substantial commitment of time.

Due to the demanding nature of the actuarial science major and the difficulty of the professional examinations, the department maintains a selective admission program for actuarial science.

Students interested in becoming actuaries should declare pre-actuarial science as their major when they enter The University of Iowa. They should apply for admission to the actuarial science major in the fall semester, but no later than March 1 of the spring semester two years before they expect to graduate.

Students admitted to the actuarial science major normally have completed at least 40 semester hours at The University of Iowa or at another postsecondary institution, including a two-course calculus sequence, a course in linear algebra, a course in probability and statistics, and one additional advanced mathematics course. Permission to substitute course work taken at another institution for required courses at Iowa is decided case-by-case. For application forms and more information about selective admission, contact the Department of Statistics and Actuarial Science.

This B.S. prepares students for careers in the actuarial profession and helps them learn material included in the professional examinations. Students take a variety of both theoretical and practice-oriented actuarial science courses. In addition, preparation for business aspects of the actuarial profession requires the study of accounting, law, finance, insurance, and economics. Courses relating to communication skills, such as writing and speaking, are also very important.

Requirements for the major in actuarial science changed in 1996. Students who were admitted to the major before August 1996 may choose to fulfill the old requirements (see the 1995-1996 College of Liberal Arts Bulletin) if they complete the major by August 2000. All students admitted to the major after the first day of classes fall 1996 must complete the new requirements. Courses required for the major are as follows.

Computer Science

22C:16 Introduction to Programming 4 s.h.

Economics

6E:1 Principles of Macroeconomics 4 s.h.
6E:2 Principles of Macroeconomics 4 s.h.

Mathematics

One of these sequences:
22M:25-26 Calculus I-II 8 s.h.
22M:33-36 Engineering Calculus I-II 8 s.h.
22M:45-46 Accelerated Calculus I-II 8 s.h.
Both of these:
22M:27 Introduction to Linear Algebra 4 s.h.
22M:55-56 Fundamental Properties of Spaces and Functions I-II 6 s.h.

Statistics and Actuarial Science

All of these:
22S:112 Introduction to Actuarial Science 3 s.h.
22S:130-31 Introduction to Mathematical Statistics I 6 s.h.
22S:153-54 Mathematical Statistics I-II 6 s.h.
22S:177 Numerical Analysis for Actuaries 3 s.h.
22S:180 Mathematics of Finance 3 s.h.
22S:181-182 Life Contingencies I-II 6 s.h.

In exceptional cases, the adviser may grant permission to waive 22S:130 and/or 22S:131.

At least one of these:
22S:175 Risk Theory 3 s.h.
22S:176 Credibility and Loss Distributions 3 s.h.
22S:183 Life Contingencies III 3 s.h.
22S:189 Topics in Actuarial Science 3 s.h.

The following is a sample schedule for completing actuarial science degree requirements.
260 Liberal Arts . Statistics and Actuarial Science

FRESHMAN YEAR

Fall Semester
6E: 1 Principles of Macroeconomics 4 s.h.
22M:45 Accelerated Calculus I 4 s.h.

Spring Semester
6E:2 Principles of Macroeconomics 4 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:46 Accelerated Calculus II 4 s.h.

SOPHOMORE YEAR

Fall Semester
22C:16 Introduction to Programming 4 s.h.
22M:55 Fundamental Properties of Spaces and Functions I 3 s.h.
22S:130 Introduction to Mathematical Statistics I 3 s.h.

Spring Semester
22M:56 Fundamental Properties of Spaces and Functions II 3 s.h.
22S:112 Introduction to Actuarial Science 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:155 Methods of Statistical Inference 3 s.h.
22S:175 Risk Theory 3 s.h.
22S:182 Life Contingencies II 3 s.h.

Spring Semester
22S:176 Credibility and Loss Distributions 3 s.h.
22S:183 Life Contingencies II 3 s.h.
22S:189 Topics in Actuarial Science 3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.) Much of the work in the discipline is sequential, so students must begin requirements for the major as soon as possible. Individual study plans must be made carefully. Students who first enroll for a spring semester must consult the department to confirm a four-year plan.

B.S. in Statistics

There are two programs in Statistics; one requires 11 courses, the other 13. Courses must be taken in sequence, so students must begin work early.

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

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

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

Before the eighth semester begins: nine or ten courses in the major

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

B.S. in Actuarial Science

Before the third semester begins: calculus I and II, 22M:27, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 22M:55-56, 22S:112, 22S:130-131, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: 22C:16, 22S:153-154, 22S:180-181, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 22S:177, 22S:182 and one more course in the major

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

Honors

Qualified undergraduate students may earn their degree with honors.

To graduate with honors in statistics, a student must be a member of the University Honors Program, have 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.

M.S. in Statistics

The master's degree in statistics is offered with or without thesis. 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:195 Regression Analysis 3 s.h.
22S:162 Analysis and Design of Experiments I 3 s.h.
22S:193 Statistical Inference I 3 s.h.

NONTHESIS PROGRAM

The following course work is required for the nonthesis master's degree in statistics. Experience in a computer language such as C, C++, or FORTRAN is required.

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.
22S:193-94 Statistical Inference I-II 6 s.h.
At least four of these (must include 22S:167 or 22S:173):
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 II 3 s.h.
22S:173 Data Analysis 3 s.h.
Any 200-level statistics course

THESS PROGRAM
The master’s thesis program requires the following course work. Experience in a computer language such as C, C++, or FORTRAN is required.
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.
22S:193-194 Statistical Inference I-II 6 s.h.
At least two of these:
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.
Any 200-level course in the department
At least two of these:
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

Quality Management and Productivity
This innovative M.S. program is sponsored by the Departments of Statistics and Actuarial Science (College of Liberal Arts), Industrial Engineering (College of Engineering), and Management Sciences (College of Business Administration). The program requires 36 semester hours, including a course on Statistical Quality Control (SOC) and Total Quality Management (TQM), plus the following courses.
22S:130-131 Introduction to Mathematical Statistics I-II 6 s.h.
22S:153-154 Mathematical Statistics I-II 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.
6K:278 Forecasting 3 s.h.
or
22S:156 Applied Time Series Analysis 3 s.h.
6K:284 Operations Strategy 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 maintain a grade-point average of at least 3.00 for courses in the plan of study. Outstanding students may write an M.S. thesis.

M.S. in Actuarial Science
The master’s degree in actuarial science is available without thesis. Students must complete at least 36 semester hours of course work to earn the M.S. The required courses are as follows.
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:181-182 Life Contingencies I-II 6 s.h.
22S:199 Seminar: Actuarial Science 2 s.h.
One of these sequences:
22S:153-154 Mathematical Statistics I-II 6 s.h.
22S:192-193 Probability Statistical Inference I 6 s.h.
At least one of these:
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.
22S:155 Regression Analysis 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:194 Statistical Inference II 3 s.h.
At least two of these:
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

Doctor of Philosophy
Course requirements for the Ph.D. in statistics are as follows.
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:193-194 Statistical Inference I-II 6 s.h.
22S:203-204 Foundations of Probability I-II 6 s.h.
22S:225 Linear Models 3 s.h.
22S:299 Reading Research (18 semester hours are required) 18 s.h.

Statistics and Actuarial Science • Liberal Arts 261

At least two of these:
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 II 3 s.h.
At least one of these:
22S:264 Empirical Processes with Applications 3 s.h.
22S:274 Martingales and Related Processes 3 s.h.

At least two additional courses from these:
22S:220 Analysis of Categorical Data 3 s.h.
22S:225 Survival Data Analysis 3 s.h.
22S:230 Nonparametrics Statistical Analysis 3 s.h.
22S:235 Time Series Analysis 3 s.h.
22S:238 Bayesian Analysis 3 s.h.
22S:248 Computer Intensive Statistics 3 s.h.
22S:256 Multivariate Analysis 4 s.h.
22S:264 Empirical Processes with Applications 3 s.h.
22S:274 Martingales and Related Processes 3 s.h.

At least two semester hours from any combination of these:
22S:293 Seminar: Probability arr.

In addition, each semester a graduate student registers for 6 or more semester hours, he or she must include at least one course of at least 2 semester hours offered by the Department of Statistics and Actuarial Science, excluding 22S:191, 22S:197, and 22S:299.

During the graduate program, students may take course work or seminars in other departments to achieve auxiliary goals of the doctoral program: to relate an area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and respond in personal contacts with foreign statisticians.

COMPREHENSIVE EXAM
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, 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.

Financial Support
Students who wish to be considered for financial assistance for their third year in the program should request a qualifying analysis no later than spring semester of their second year.
Special Features

Because statisticians often team with other scientists in research projects, it is important that students gain experience working in groups. 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 112 after receiving credit for one numbered above 112. Students may receive credit for only two of these courses: 22S:2, 22S:8, or 22S:25 (same as 7P:25). Credit for 22S:8 is given only if it is taken before 22S:8 and 22S:25 (same as 7P:25). Students may receive credit for only one course from each of the following pairs: 22 S:101/102, 22 S:120/130, 22 S:152/155, and 22 S:158/162.

22S:112 Introduction to Actuarial Science 3 s.h.
Types of insurance, the insurance policy, portfolio models; deterministic approach to annuities, premiums, reserves. Closed to students who have completed 22S:181. Offered spring semesters.

22S:120 Probability and Statistics 4 s.h.
Models, discrete and continuous random variables and their distributions, estimation of parameters, testing statistical hypotheses. Prerequisite: 22S:120 or 22M:36 or 22M:46.

22S:130 Introduction to Mathematical Statistics I 3 s.h.
Descriptive statistics, probability, discrete and continuous distributions, sampling, sampling distributions. Prerequisite: 22M:26 or 22M:36 or 22M:46.

22S:131 Introduction to Mathematical Statistics II 3 s.h.
Estimation, testing and statistical hypotheses, linear models, multivariate distributions, nonparametric methods. Prerequisite: 22S:130.

22S:133 Quality Control
Prerequisite: 22S:39. Same as 56:162.

22S:135 Continuous Quality Improvement
3 s.h.
Course for upper-level undergraduates and M.S. students dealing with Deming’s philosophy of Quality Improvement; Statistical Process Control, including Shewhart control charts, CUSUM, capability indices, and acceptance sampling; introduction to basic designs of experiments including Taguchi methods; communication skill development through oral and written reports. Prerequisites: 22S:120 or 22S:811 or equivalent.

22S:138 Bayesian Statistics I 3 s.h.
Theory and practice of Bayesian statistical analysis; Bayesian, classical paradigms; Bayesian version of classical concepts, such as confidence intervals, hypothesis tests, sufficiency, central limit theorem; emphasis on noninformative priors, computational approximations, hierarchical models, robustness. Prerequisite: 22S:120 or equivalent. Same as 7P:148.

22S:140 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.
Prerequisite: 63:161. Same as 63:162.

22S:148 Intermediate Statistical Methods 3 s.h.
Prerequisite: 22S:120 or 22S:131 or 22S:133 or 22S:120 or equivalent. Same as 7P:243.

22S:149 Statistical Analysis and Computing 3 s.h.
Standard statistical methods, applications; statistical graphics; IOM, elements of sampling theory, power, sample-size determination; computing using standard batch-style and interactive packages, modern statistical languages; projects revolving data collection, analysis. Graduate standing in statistics or consent of instructor required.

22S:150 Methods of Statistical Inference 3 s.h.
Regression analysis, forecasting, time series methods; use of statistical computer packages. Prerequisite: 22S:120 or 22S:131 or 22S:133 or 22S:154.

22S:152 Regression and Design 3 s.h.
Linear regression models; residual plots; diagnostics; model selection; weighted linear regression; nonlinear regression; completely randomized designs in one and two factors; two-level factorial and fractional factorial designs; blocking; analysis of means; use of statistical computer packages. Prerequisite: 22S:139 or 22S:120 or equivalent. Same as 56:166.

22S:153 Mathematical Statistics I 3 s.h.
Probability, conditional probability, random variables, distribution and density functions, joint and conditional distributions, various families of discrete and continuous distributions, mgf technique for sums, convergence in distribution, convergence in probability, central limit theorem. Prerequisites: 22M:27 and 22M:28, or equivalents.

22S:154 Mathematical Statistics II 3 s.h.

22S:155 Regression Analysis 3 s.h.
Multiple linear regression model, matrix approach, residual analysis, variable selection, dummy variables, regression diagnostics, use of statistical computer packages. Prerequisite: 22S:149 or consent of instructor.

22S:156 Applied Time Series Analysis 3 s.h.
General stationary, nonstationary models, autocovariance autocorrelation functions; stationary, nonstationary autoregressive integrated moving average models; Identification, estimation, forecasting in linear models; use of statistical computer packages. Offered spring semesters. Prerequisites: 22S:131, and 22S:152 or 22S:155.

22S:157 Correlation and Regression
Prerequisite: 22S:148 or equivalent. Same as 7P:244.

22S:158 Experimental Design and Analysis 3 s.h.
Single- and multifiactor experiments; analysis of variance; multiple comparisons; contrasts; diagnostic tests; fixed, random, and mixed effects models; design, data gathering and/or testing; two-level factors and fractions thereof; use of statistical computing packages. Prerequisites: 22S:152, and 22S:120 or 22S:131 or 22S:154.

22S:159 Design of Experiments
Prerequisite: 22S:148. Same as 7P: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. Offered fall semesters. Prerequisites: 22S:155 and 22S:162, or consent of instructor. Same as 7P:247.

22S:162 Analysis and Design of Experiments I 3 s.h.
Randomization, nesting, blocking; useful experimental designs, including factorial, split-plots, crossed over, latin squares, randomized block designs; distribution theory, expected mean squares; power and sample size. Prerequisite: 22S:149.

22S:163 Nonparametrics 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:130 or consent of instructor. Same as 7P:247.

22S:166 Introduction to Stochastic Processes
3 s.h.
Theory and applications of Poisson 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 and fractional factorial designs; alias structure; resolution; saturated designs; response surface methods; canonical analysis; ridge analysis; simplex, composite, rotatable, orthogonal designs; empirical text; crucial model building; nonlinear models. Prerequisites: 22S:155 and 22S:162, or consent of instructor.

22S:172 Topics in Statistics
3 s.h.
Prerequisite: 22S:154 or consent of instructor.

22S:173 Data Analysis
3 s.h.
Realistic supervised data analysis experiences, including statistical packages, statistical graphics, writing statistical reports, dealing with complex or messy data. Offered spring semesters. Prerequisites: 22S: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 reinforcement. Offered summer 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 and linear credible estimation in group rating. Offered spring semesters. Prerequisite: 22S:154 or 22S:195.

22S:177 Numerical Analysis for Actuaries
5 s.h.
Calculus of finite differences, interpolation, numerical integration, solution of nonlinear equations. Offered fall semesters. Prerequisites: 22S:22, and 22M:28 or 22M:56.

22S:180 Mathematics of Finance
3 s.h.
Advanced mathematics of finance, including annuities certain, amortization schedules, yield rates, sinking funds, bonds. Offered fall semesters. Prerequisite: 22M:26 or 22M:36 or 22M:46.

22S:181 Life Contingencies I
3 s.h.
Elementary deterministic and advanced stochastic approaches; survival distributions and table, life insurance, life annuities. Offered spring semesters. Prerequisites: 22S:153 or 22S:192, and a grade of C or higher in 22S:180, 22S:182.

22S:182 Life Contingencies II
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 III
3 s.h.
Continuation of 22S:182; pensions, gross premiums, modified reserves, cash values, asset shares, applications. Offered spring semesters. Prerequisite: grade of C or higher in 22S:182.

22S:188 Actuarial Exam Preparation
1 s.h.
May be repeated.

22S:189 Topics in Actuarial Science
3 s.h.
Representative topics: survival analysis, demographic, graduation, pension funding, valuation, asset/liability management. May be repeated. Consent of instructor required.
22S:253 Mathematical Methods for Statistics 3 s.h. Real numbers, point set theory, limit points, limits, sequences and series, Taylor series (multivariate), uniform convergence, Riemann Stieltjes integrals. Graduate standing in statistics required.


22S:192 Probability 3 s.h. Combinatorial analysis, probability spaces, conditional probability, independence, random variables (includes standard distributions), joint distributions, expectation, limit theorems. Prerequisites: 22M:27 and 22M:28.


22S:194 Statistical Inference II 3 s.h. Hypothesis testing, interval estimation, decision theory. Prerequisite: 22S:193.

22S:197 Readings in Statistics and/or Actuarial Science arr. Consent of instructor required.

22S:199 Seminar: Actuarial Science 2 s.h. Prerequisites: 22S:175 and 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 integral, product measure and independence, Borel 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 62:163.

22S:225 Survival Data Analysis 3 s.h. Same as 63:201.


22S:235 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 Empirical Processes with Applications 3 s.h. Weak convergence in metric spaces, empirical processes indexed by functions, Donsker classes, maximal and exponential inequalities; applications to survival analysis, econometrics, nonparametric and semiparametric maximum likelihood estimation, constraint estimation problems and bootstrap. Prerequisite: 22S:204.


22S:274 Martingales and Related Processes 3 s.h. Conditional probability and expectation, discrete and continuous time martingales, optional stopping rules, strong and weak limit theory, Gaussian and other related processes, applications to statistics. Prerequisite: 22S:204.


22S:297 Seminar: Actuarial Science arr. Topics in asset and liability management, risk theory, graduation theory, and so forth. Advanced graduate standing required.

22S:299 Reading Research arr. Consent of adviser required.

THEATRE ARTS

Chair: Alan Mokler MacVey
Professors: Eric Forsythe, David Thayer
Professors emeriti: Cosmo A. Catalano, Lewin Goff, David Schal
Associate professors: Lee Blessing, Alan MacVey, Kim Marra
Assistant professors: AZE Bertocca, Ellen McCartney
Adjunct assistant professors: Carol MacVey, Rachelle Tschor
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. Iowa theatre arts students take workshop courses in acting, directing, design, technical theater, and playwriting and complement them with classes in dramatic literature, history, and criticism. Students also are actively encouraged to explore a range of courses through the University. Dozens of productions each year provide additional opportunities to learn the theater craft and to develop a personal artistic vision.

The department also is interested in educating students who plan to enter other fields in which understanding of the arts and experience with theater skills are useful.

Degree Requirements

The following courses compose the basic experience for all undergraduate theatre arts majors.

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.
49:60 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.

Four semester hours from the following courses (all courses may be repeated):

49:45 Production: Run Crew 1 s.h.
49:46 Production: Crew Chief 2 s.h.
49:47 Production: Construction 2 s.h.

One of these:

49:130 Directing I 3 s.h.
49:194 Dramaturgy 3 s.h.

Art 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 corequisite or prerequisite to 49:45 Production: Run Crew and is prerequisite to 49:46-47 Production: Crew Chief and Construction.

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-level 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.

Transfer Students

Students who transfer to The University of Iowa from other accredited two- or four-year institutions must demonstrate that they have successfully completed course work equivalent to the basic requirements of the theatre arts department and the University before they may undertake advanced-level electives.
**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan.

- Before the third semester begins: at least one-quarter of the semester hours required for graduation
- Before the fifth semester begins: two courses in the major (49:25 and 49:43) and at least one-half of the semester hours required for graduation
- Before the seventh semester begins: three more courses in the major, two semesters of production credit, and at least three-quarters of the semester hours required for graduation
- Before the eighth semester begins: two more courses in the major and another semester of production credit

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

**Honors**

Honors students complete an honors project under the supervision of a faculty member. Projects may be analytical or creative or an appropriate combination of the two. All require an oral presentation or performance for the faculty.

Senior majors who are members of the University Honors Program and have earned a 3.00 grade-point average in the major are, with the approval of the faculty, qualified to undertake an honors project. Students who wish to complete an honors project meet with the departmental honors adviser, who advises them on finding an appropriate faculty project adviser, preparing and gaining acceptance for a written proposal, presenting the work, and evaluating the outcome.

**Minor**

A minor in theatre arts requires 15 semester hours of course work in theatre arts, excluding 49:1 and 49:2, with a grade-point average of at least 2.00. At least 12 of these semester hours must be taken at The University of Iowa in advanced courses. Advanced courses accepted by the department include 49:21, 49:25, 49:43, 49:44, 49:60, 49:62, and any course numbered 49:100 and above.

**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 or 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 program, 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. Mabie Theatre, a continental-style, 477-seat proscenium playhouse, is one of the finest theaters 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. The flexible studio theater seats 50.

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 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 design students.

To support its production schedule and to provide students with an appropriate range of experience, the department maintains shops for building, painting, maintaining, and storing scenery, costumes, and properties. Using these shops, students learn to work in metal, plastics, canvas, and wood.

**Productions**

The Theatre Arts Department presents 30-35 public productions each year. These include a subscription series of four or five plays, a festival of six new works by students, Iowa Summer Rep, and roughly twelve 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>49:00</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>49:1</td>
<td>Art of the Theatre</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>49:20</td>
<td>Basic Acting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>49:21</td>
<td>Basic Acting H</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>49:23</td>
<td>Improvisation for the Theatre</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>49:27</td>
<td>Basic Movement and Body Awareness</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>49:28</td>
<td>Basic Stage Combat</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>49:41</td>
<td>Costume Practicum</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>49:43</td>
<td>Elements of Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>49:44</td>
<td>Theatre Crafts</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>49:45</td>
<td>Production: Run Crew</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>49:46</td>
<td>Production: Crew Chief</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>49:47</td>
<td>Production: Construction</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**Primarily for Graduates**

- 49:100 Cooperative Education Internship 0 s.h.
- 49:1 Art of the Theatre 3 s.h.
- 49:2 Theatre and Society 3 s.h.
- 49:20 Basic Acting 3 s.h.
- 49:21 Basic Acting H 3 s.h.
- 49:23 Improvisation for the Theatre 3 s.h.
- 49:27 Basic Movement and Body Awareness 3 s.h.
- 49:28 Basic Stage Combat 2 s.h.
- 49:41 Costume Practicum 3 s.h.
- 49:43 Elements of Design 3 s.h.
- 49:44 Theatre Crafts 3 s.h.
- 49:45 Production: Run Crew 1 s.h.
- 49:46 Production: Crew Chief 2 s.h.
- 49:47 Production: Construction 2 s.h.
Acting and Directing

49:60 Play Script Analysis 3 s.h. Historical and contemporary, variety of genres; dynamics of play structure; challenges of playwrights for directors, actors, designers, technicians.

49:62 Basic Play Writing 3 s.h. Emphasis on one act play; original student writing. GE: fine arts or humanities.

49:63 Basic Play Writing II 3 s.h. Continuation of 49:62, which is prerequisite; emphasis on demands of writing one-act play.

49:65 Public Theatre (Theatre Publico) 3 s.h. Nontraditional blue collar view of theater. Offered only through Saturday & Evening Classes.

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, nontheater major acting.

49:94 Oral Interpretation of Literature 3 s.h. Princeton required. Prerequisites: 49:120 and 49:125.

49:121 Advanced Scene Study 3 s.h. Development of characterizations, personal research, advanced approaches to realistic material, difficult scenes. Consent of instructor required. Prerequisites: 49:120 and 49:125.

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. Consent of instructor required. Prerequisites: 49:25.

49:126 Voice for the Actor II 3 s.h. Continuation of 49:125, which is prerequisite. Consent of instructor required.

49:127 Theatre Movement 3 s.h. Awareness through application of techniques to relax stress, tension while freeing energy for ease, flexibility in expressive movement; relation of self to character through movement. May be repeated. Open only to theatre arts majors.

49:128 Movement for the Actor 3 s.h. Continuation of 49:127, which is prerequisite. Consent of instructor required.

49:129 Advanced Stage Combat 3 s.h. Principle(s) safety, techniques of nonviolent stage combat for actor, director, choreographer.

49:130 Directing I 3 s.h. Basic elements; exercises in composition, emphasis, movement, rhythm, directorial 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, which is prerequisite; advanced exercises in theatrical direction; focus on theatricality, storytelling, style; development of concept building; direction of theater projects. Consent of instructor required.

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. Consent of instructor required. Prerequisite: 49:44.

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 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/imp, 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.

49:134 Scene Design I 3 s.h. The design process, including research, rendering, model building. Consent of instructor required. Prerequisite: 49:43. Same as 13:14.

49:135 Costume Design I 3 s.h. Historical orientation; the design process, including research, rendering, swatching. Consent of instructor required.

49:136 Lighting Design I 3 s.h. Visual perception, optical control of light, introduction to design procedure and responsibilities. Consent of instructor required. Prerequisite: 49:43.

49:137 Scene Design II 3 s.h. Designer's research, development of production concepts; projects in scenery, property design. Consent of instructor required. Prerequisites: 49:60, 49:134, and 49:144.

49:138 Costume Design II 3 s.h. Continuation of 49:135; emphasis on designer's research, production concepts. Consent of instructor required. 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. Consent of instructor required. Prerequisites: 49:60, 49:136, and 49:144.

49:140 Sound Design for the Theatre 3 s.h. Conception, development of sound scores for performance of dramatic works; sound studio equipment, technique. Consent of instructor required.

49:144 Drafting for Designers I 3 s.h. Tools, conventions of theatrical drafting for design and technical drawing; two dimensional CAD. Consent of instructor required.

49:145 Drafting for Designers II 3 s.h. Three dimensional CAD. Consent of instructor required. Prerequisite: 49:144.

49:146 Drafting and Rendering for the Theatre 3 s.h. Presentation techniques for scene, costume, lighting designs. May be repeated. Consent of instructor required. 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. Consent of instructor required.

49:149 Technical Problems for Designers 3 s.h. Developing technical solutions for design problems. Consent of instructor required.

49:151 Scenic Art for Designers 3 s.h. Scene painting, model building, construction, finishing. Consent of instructor required.

49:152 Costume Crafts I 3 s.h. Pattern development from theatrical designs; fitting problems; corsets and other body shaping garments; millinery, inner, footwear, etc. Consent of instructor required.

49:153 Costume Crafts II 3 s.h. Continuation of 49:152, which is prerequisite. Consent of instructor required.

49:156 Stage Makeup 3 s.h. Application and design. Consent of instructor required.

49:157 Life Drawing II 3 s.h. Same as IF: 105.

49:158 Environmental Design I 3 s.h. Same as ID: 137.

49:237 Scene Design III 3 s.h. Advanced projects. Admission to M.F.A. design program and consent of instructor required. Prerequisite: 49:194 or 49:215.

49:238 Costume Design III 3 s.h. Advanced projects in drama, opera, dance. Admission to M.F.A. design program and 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 and consent of instructor required. Prerequisites: 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.

49:244 Costume Design V 3 s.h. Portfolio development; collaborative. Consent of instructor required.

49:245 Lighting Design V 3 s.h. Portfolio development; collaborate. Consent of instructor required.

49:249 Production Management 3 s.h. Organization, supervision of theatrical production.

49:251 Internship in Design 1-6 s.h. Experience at a regional theater. Open only to fifth-semester M.F.A. candidates in design.

49:255 Studio in Theatrical Design 3 s.h. Advanced projects in drama, opera, dance, Consent of instructor required.

Playwriting

49:163 Adaptation 3 s.h. Dynamics of playwriting through transforming fictional, documentary materials into playscripts. Consent of instructor required.

49:164 Playwriting for Other Media 3 s.h. Playwriting for radio, television. Consent of instructor required.

49:165 Advanced PlayWriting 3 s.h. Continuation of 49:63; original student writing; extensive rewriting; play finishing; playscripts of contemporary writers. Consent of instructor required.

49:166 PlayWriting The Docudrama 3 s.h. Documentary writing for stage; analysis of stage, television, film documentaries; students write stage play using factual material. Consent of instructor required.

49:167 Experimental PlayWriting 3 s.h. Alternate writing styles; recent performance pieces in America and abroad. Consent of instructor required.

49:168 The One-Person Play 3 s.h. Students write work for one actor; published playscripts for one person. Consent of instructor required.
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 3 s.h.
Same as 8:253.

49:215 Advanced Playscript 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 theatrical writing, design, acting, directing.

49:217 Performance Theory 1-4 s.h.
Influential documents of dramatic, theatrical theory; classical Greek, 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 visual art, film, broadcast media.

49:261 History of Criticism Plato to 1700 3 s.h.
Same as 8:261, 48:261, 14:261.

49:262 History of Criticism 1700-Present 3 s.h.
Same as 8:262, 48:262.

49:117 American Drama Since 1945 3 s.h.
Theater since 1960; major playwrights, directors; contemporary and postmodern theatrical ideas, practices. GE: fine arts or humanities.

49:187 Modern Drama: Brecht to Stoppard 3 s.h.
Focus on eighteenth century, eighteenth century, romantic, modern, postmodern, feminist.

49:189 Indian Theatre 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 Advanced Black Action Theatre 3 s.h.
Offered spring semesters Consent of instructor required. Same as 129:191.

49:192 African American Drama 3 s.h.
Same as 129:180, 8:154.

49:193 Studies in Drama 3 s.h.
Same as 8:167.

49:212 The Collaborative Process 1-3 s.h.
Artistic collaboration. Consent of instructor required.

49:173 Guest Seminar arr.
Consent of instructor required.

49:269 Playwrights Workshop 3 s.h.
Works by Iowa Playwrights Workshop members. Consent of instructor required.

49:171 Special Topics in Playwriting 3 s.h.
or foreign political issues. Consent of instructor required.

Brecht to Blessing; students write a stage play dealing with U.S.

49:113 History of Theatre and Drama 11 3 s.h.
American, British, French, German, Latin American, African theater since 1960; major playwrights, directors; contemporary and postmodern theatrical ideas, practices. GE: fine arts or humanities. Same as 9:184.

49:114 Contemporary Theatre and Drama 3 s.h.
Consent of instructor required.

49:115 London Performance Study 3 s.h.
In the broad issues of Third World development, with emphasis on support services that social sciences offer to the development process. The program promotes interdisciplinary scholarship, research, and applied professionalism related to development problem solving.

The program’s faculty represents departments across the University, including African American world studies, anthropology, art and art history, civil and environmental engineering, geography, history, journalism and mass communication, political science, social work, and urban and regional planning. Many faculty members are involved in training efforts in the United States and abroad, and many are consultants to international agencies on development program design and evaluation.

Students from diverse backgrounds and professional experiences enroll in the program. 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 (CICS), and the Graduate College. Students may pursue a Master of Arts degree through a program of study designed especially for individuals who plan to pursue or are 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 who plan 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 plan to pursue careers in which they will apply social scientific knowledge to development problem solving. 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 3 s.h.
- 150:202 Contemporary Issues in Development 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.

- Core courses (see “Required Core”) 11 s.h.
- Conceptual courses chosen from “DSS Conceptual Courses” (students may take courses in one topic area to approximate a disciplinary major or may choose courses from several areas) 9 s.h.
- Electives (at least 3 s.h. chosen from “DSC Professional Courses” or “DSSW Professional Courses”) 6 s.h.
- 150:250 Master’s Research (thesis and oral defense, up to 6 s.h.) arr.

**DSS CONCEPTUAL COURSES**

**International Economic Development**

- 6E: 125 International Economics 3 s.h.
- 6E: 129 Economic Growth and Development 3 s.h.
- 102:291 Economic Development Analysis 3 s.h.
- 102:295 Economic Development Policy 3 s.h.

**Political Economy and Public Policy**

- 30:150 The Political Economy of Developing Countries 3 s.h.
- 30:350 Political Economy and Public Policy in Developing Countries 3-4 s.h.
- 91:286 International Organizations 3 s.h.

**Problems in Social Work**

- 42:285 Travel/Study Seminar (no poverty in Mexico) arr.

**Regional Development**

- 16W: 121 African History Since 1880 3 s.h.
- 113:131 Latin American Economy and Society 3 s.h.
- 141:146 African Development 3 s.h.
- 141:157 Peoples and Cultures of Africa 3 s.h.

**Social and Educational Policy**

- 7F: 104 Education in the Third World 2-3 s.h.
- 44:274 Seminar: Social Change 3 s.h.
- 113:151 Sociology of the Third World 3 s.h.

**Spatial and Geographic Perspectives**

- 44:194 Geographic Perspectives on Development 3 s.h.
- 102:217 Spatial Analysis in Planning 3 s.h.
- 113:143 Environment and Culture 3 s.h.

**Urban/Industrial Development**

- 44:135 Urban Geography 3 s.h.
- 102:291 Economic Development Analysis 3 s.h.

**Women in Development**

- 16W: 124 Women in African History 3 s.h.
- 102:146 Women and the City 3 s.h.
- 113:175 Gender and Development Studies 3 s.h.

**Communication Support? (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.

- Core courses (see “Required Core”) 11 s.h.
- Professional courses chosen from “DSC Professional Courses” (students may take courses in one topic area or from several areas) 9 s.h.
- Conceptual courses (3 s.h. from “DSC Conceptual Courses” and 3 s.h. from “DSS Conceptual Courses”) 6 s.h.
- 150:250 Master’s Research (project, comprehensive exam, and oral defense, up to 6 s.h.) arr.

**DSSW PROFESSIONAL COURSES**

**Administration**

- 42:204 Human Services Administration 2 s.h.

**Community Development Participation**

- 42:145 Organization and Community Practice 3 s.h.

**Gender Issues and Development**

- 113:175 Gender and Development Studies 3 s.h.
- 131:146 Women and the City 3 s.h.

**Small-Scale Enterprises**

- 42:285 Travel/Study Seminar 1 s.h.

**Social Welfare Planning**

- 42:286 Social Welfare Seminar 1 s.h.

**DSSW CONCEPTUAL COURSES**

- 42:140 Human Behavior in the Social Environment 3 s.h.
- 42:143 Social Welfare Policy and Practice 3 s.h.
- 42:252 Family Policy: Domestic and International 3 s.h.
- 42:262 Social Policy and Integrated Practice: Domestic and International 3 s.h.

**Admission**

Applications for admission and transcripts are due at The University of Iowa Office of Admissions no later than March 15 for fall
semester and October 1 for spring semester. Students who wish to be considered for a limited number of graduate assistantships should submit applications both for admission and for graduate awards by February 1.

Minimum requirements for acceptance are a cumulative undergraduate grade-point average of 2.50 or 12 semester hours of graduate work with a grade-point average of at least 3.00, and a GRE score of 1100. Foreign student applicants whose native language is not English must have a TOEFL score of 600.

Students should submit the following materials directly to the program, by the same deadlines as for admission applications: three letters of recommendation, a one-page essay explaining their interest in the program, and an example of their written or professional work. Because applicants’ educational background, linguistic ability, and professional experience vary greatly, the admissions committee considers the complete record of each applicant, including academic transcripts and professional experience. Priority is given to applicants — U.S. citizens and foreign nationals alike — who have working experience in development and who demonstrate a facility for languages.

**Associated Courses**

<table>
<thead>
<tr>
<th>AFRICAN STUDIES</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>141:146 African Development</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>141:157 Peoples and Cultures of Africa</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANTHROPOLOGY</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>113:120 Peoples and Cultures of Africa</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>113:131 Latin American Economy and Society</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>113:143 Environment and Culture</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>113:151 Sociology of the Third World</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>113:175 Gender and Development Studies</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>113:275 Development Policy and Planning in the Third World</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ART</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 D: 133 Graphic Design 11</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>1D:235 Graphic Design Workshop</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>1D:249 Advanced Problems in Design</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>1 L: 105 Advanced Photography</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BUSINESS ADMINISTRATION</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6M:151 International Marketing</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMUNICATION STUDIES</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>36D:95 Radio Production I</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>36D:96 Television Production I</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>36D:97 Film Production I</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>36M:231 Theories of Mass Communication</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>36R:607 Seminar: Rhetoric and Culture 1-4 s.h.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ECONOMICS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8E:128 International Economics</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>6E:129 Economic Growth and Development</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EDUCATION</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7F:104 Education in the Third World</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>7F:275 Development Policy and Planning in the Third World</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>7W:120 Introduction to Instructional Design</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GEOGRAPHY</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>44:135 Urban Geography</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>44:161 African Development</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>44:194 Geographic Perspectives on Development</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>44:274 Seminar: Social Change</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>44:275 Development Policy and Planning in the Third World</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HISTORY</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16W: 121 African History Since 1880</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>16W: 124 Women in African History</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>JOURNALISM AND MASS COMMUNICATION</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>19:200 Visual Communication</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:206 Comparative Communication Systems</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:207 Third World Development Support</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:230 Specialized Reporting and Writing: International Affairs Journalism</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:231 Depth Reporting and Writing: International Affairs Journalism</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:240 Media Workshop</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:241 Publication Design Workshop</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:242 Photожournalism Workshop</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:255 Problems in International Communication</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:280 Master’s Tutorial</td>
<td>arr.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LAW</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>91:286 International Organizations</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>POLITICAL SCIENCE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>30:146 African Development</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>30:150 The Political Economy of Developing Countries</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>30:250 Political Economy and Public Policy in Developing Countries</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIAL WORK</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>42:140 Human Behavior in the Social Environment</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>42:143 Social Welfare Policy and Practice</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>42:145 Organization and Community Practice</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>42:204 Human Services Administration</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>42:252 Family Policy: Domestic and International</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>42:262 Social Policy and Integrated Practice: Domestic and International</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>42:275 Development Policy and Planning in the Third World</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>42:285 Travel/Study Seminar</td>
<td>arr.</td>
<td></td>
</tr>
<tr>
<td>42:286 Social Welfare Seminar</td>
<td>1 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIOLOGY</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>34:151 Sociology of the Third World</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>34:275 Development Policy and Planning in the Third World</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>URBAN AND REGIONAL PLANNING</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>102:146 Women and the City</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>102:217 Spatial Analysis in Planning</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>102:275 Development Policy and Planning in the Third World</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>102:291 Economic Development Analysis</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>102:295 Economic Development Policy</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**WOMEN’S STUDIES**

| 131:146 Women and the City | 3 s.h. |                |

**Courses**

| 150:101 Special Topics in Development Support arr. |                |
| 150:200 Readings in Development Support Studies arr. |                |
| 150:201 Special Topics in Development Support arr, Consent of instructor required. |                |
| 150:202 Contemporary Issues in Development 1 s.h. |                |
| 150:210 Third World Research Methodology 3 s.h. Modes of social scientific observation, data gathering, processing, analysis, and reporting in conditions characterized by lack of customary sampling frames. |                |

**TRANSPORTATION STUDIES**

Director: David J. Forkenbrock

Professors: David J. Forkenbrock (Urban and Regional Planning), John W. Fuller (Urban and Regional Planning/Geography/Economics), Gerard Ruskilton (Geography)

Associate professors: Marc P. Armstrong (Geography), James W. Stoner (Civil and Environmental Engineering), Assistant professors: Malcomb H. Ray (Civil and Environmental Engineering), John G. Shaw (Urban and Regional Planning), H. Michael Zhang (Civil and Environmental Engineering)

Graduate degree: certificate in Transportation Studies

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 draw on a number of skills to respond to the challenges they face. They must analyze and forecast the movement of people and goods within and between cities; identify effective and efficient means for providing desired transportation services; price these services properly; and evaluate the impact that transportation changes have on land use, environmental quality, the local or regional economy, and various subgroups within society.

**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, as described in this section of the Catalog.

Students who enroll in a course of study leading to transcript certification also may wish to participate in faculty-led research in transportation, which may explore such topics as system planning, traffic operations and engineering, spatial data systems and analysis, simulation applications, and policy issues.

**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. maybe 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 to defend the paper in an oral examination.

The Ph.D. degree involves a minimum of 72 semester hours beyond the B.S. degree, with 48 to 54 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, additional course work in statistics, computer programming, simulation, mathematics, and operations research may be required. However, the credit earned in these courses may not be applicable to the degree program.

The following courses are required.

Four courses in transportation:

3: 161 Atmospheric Chemistry and Physics 3 s.h.
3: 162 Design of Transportation Systems 3 s.h.
3: 167 Traffic Systems Theory 3 s.h.
102: 260 Transportation Policy and Planning 3 s.h.

Two general core courses:

53: 111 Numerical Calculations 3 s.h.
53: 113 Mathematical Methods in Engineering 3 s.h.

A typical master's program includes the following courses.

**First Semester**

53: 111 Numerical Calculations 3 s.h.
53: 113 Mathematical Methods in Engineering 3 s.h.
53: 167 Traffic Systems Theory 3 s.h.
53: 262 Transportation Demand Analysis 3 s.h.
102: 269 Transportation Program Seminar 1 s.h.

**Second Semester**

53: 162 Design of Transportation Systems 3 s.h.
53: 199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h.
102: 260 Transportation Policy and Planning 3 s.h.
102: 268 Seminar in Transportation Issues 1 s.h.
Technical elective 3 s.h.

**Third Semester**

53: 161 Atmospheric Chemistry and Physics 3 s.h.
53: 199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h.
Technical electives 6 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 area of specialization.

**Fourth Semester**

53: 264 Impact Analysis and Structural Crash Worthiness 3 s.h.
53: 267 Transportation Network Analysis 3 s.h.
102: 266 Transportation and Land Use Planning 3 s.h.
Application 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 the 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**

44: 113 Principles of GIS 3 s.h.
44: 136 Transportation and the Environment 3 s.h.
102: 264 Transportation Planning Process 3 s.h.
102: 269 Transportation Program Seminar 1 s.h.

**Second Semester**

46: 184 Introduction to Econometrics 3 s.h.
44: 313 Economic Theory of Location 3 s.h.
44: 350 Geography Colloquium 1 s.h.
102: 260 Transportation Policy and Planning 3 s.h.
102: 268 Seminar in Transportation Issues 1 s.h.

**Third Semester**

6E: 213 Managerial Economics 3 s.h.
44: 350 Geography Colloquium 1 s.h.
53: 167 Traffic Systems Theory 3 s.h.
102: 262 Transportation Demand Analysis 3 s.h.

**Fourth Semester**

44: 293 Advanced Location Theory 3 s.h.
44: 330 Research Seminar: Location Theory 3 s.h.
44: 350 Geography Colloquium 1 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.

The 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 complete an integrated core curriculum consisting of courses in planning economics and public finance, analytic methods, planning theory, and law. Beginning in the second semester, students take courses in 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 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. Nineteen 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 Semester**

Core courses:

- 102:200 Analytic Methods in Planning I 3 s.h.
- 102:201 Analytic Methods in Planning II 3 s.h.
- 102:203 History and Theories of Planning 3 s.h.
- 102:205 Economics for Policy Analysis 1 3 s.h.
- 102:208 Program Seminar in Planning Practice 1 s.h.

**Second Semester**

Core courses:

- 102:202 Land Use Planning: Law and Practice 3 s.h.
- 102:206 Economics for Policy Analysis II 1 s.h.
- 102:260 Transportation Policy and Planning 3 s.h.
- 102:268 Seminar in Transportation Issues 1 s.h.
- Planning electives 4-5 s.h.

**Third Semester**

- 53:167 Traffic Systems Theory 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**

- 102:209 Field Problems in Planning 3 s.h.
- 102:268 Seminar in Transportation Issues 1 s.h.

Three of these:

- 53:267 Transportation Network Analysis 3 s.h.
- 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:

- 102:214 Land Use Planning 11: Practice and Politics 3 s.h.
- 102:218 Environmental Processes and Institutions 2-3 s.h.
- 102:234 Project Impact Analysis 3 s.h.

102:291 Economic Development 
Analysis 3 s.h.

102:295 Economic Development Policy 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: Virginia Dominguez (Anthropology), Kathleen Farrell (Communication Studies), Louis Frank (Physics and Astronomy), Jay Holstein (Religion), Robert Ketterer (Classics), Douglas Madsen (Political Science), Richard Sjolund (Biological Sciences), Russell Valentino (Russian)

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 Program requirements except foreign language. Each UP course is interchangeable with an equivalent approved course.

Students may leave the program at any time and satisfy the General Education Program requirements in other ways, but only first-semester 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 advanced algebra. Their titles may indicate content such as pre-calculus, advanced math, senior math, statistics, college algebra, or calculus.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>140:40</td>
<td>Human Biology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>140:42</td>
<td>Chemistry and Physics of the Environment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>140:43</td>
<td>Humanities I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>140:44</td>
<td>Humanities II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>140:45</td>
<td>Quest for Human Destiny</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>140:47</td>
<td>Political Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>140:55</td>
<td>Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>140:89</td>
<td>Anthropology and Contemporary World Problems</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

140:90 Theory and Practice of Argument 3 s.h.
Public argument as practiced in law, social science, politics, other arenas; oral argument. GE: quantitative or formal reasoning.

**URBAN AND REGIONAL PLANNING**

Chair: John W. Fuller
Professors: David J. Forkenbrock, John W. Fuller
Professor emeritus: James L. Harris
Associate professors: Cheryl K. Contant, Peter S. Fisher, Heather I. MacDonald, Alan H. Peters, James W. Stoner, James A. Throgmorton
Assistant professor: John G. Shaw
Adjunct assistant professors: Kazuhiro Ohta, Soo Park
Adjunct lecturers: Douglas Boothroy, Karen Countryman, David Schoon
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 transport 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 the 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, physics, history, classics, languages, and philosophy. Usually, about 40 percent of the program’s 50 to 60 graduate students are women, and about 10 percent are from foreign countries. 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 taken over two academic years. It includes 19 semester hours of core courses, at least 9 semester hours of sectoral major courses, and 20-22 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 much of the first academic year, and one field problems course taken in the final semester. The core’s purpose 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 criteria for evaluating public policies, and the analytic skills, both quantitative (e.g., statistics, forecasting, surveys, regional analysis) and nonquantitative, to perform such investigations. In total, the core accounts for 19 semester hours (12 in the first fall semester, 4 in the spring semester, and 3 in the final semester).

Courses in the first semester are drawn primarily from traditional disciplines, particularly economics and statistics, together with an introduction to the theories and practice of planning. As students proceed through the core, increasing emphasis is placed on the development of critical judgment and insight in the application of theory through realistic planning problems and actual case studies. Students may request a waiver of selected core courses on the basis of previous course work. Core curriculum courses are noted in the typical class schedule that follows.

First Semester

102:200 Analytic Methods in Planning 3 s.h.
102:201 Analytic Methods in Planning II 2 s.h.
102:203 History and Theories of Planning 3 s.h.
102:205 Economics for Policy Analysis I 3 s.h.
102:208 Program Seminar in Planning Practice 1 s.h.

Second Semester

102:202 Land Use Planning: Law and Practice 3 s.h.
102:206 Economics for Policy Analysis II 1 s.h.
Electives and sectoral major courses 7-10 s.h.

Third Semester

Electives and sectoral major courses 12-14 s.h.

Fourth Semester

102:209 Field Problems in Planning 3 s.h.
Electives and sectoral major courses 9 s.h.

The Sectoral Major

Beginning in the second semester of the program, students develop an area of concentration, termed a sectoral major, by applying the concepts and skills developed in the core to a specific field of planning. Introductory courses for each sector and skills courses applicable to several sectors are offered in the second semester. These include the following:

102:212 Regional and Urban Economics 2 s.h.
102:216 Conflict Resolution Process in Planning 2 s.h.
102:218 Environmental Processes and Institutions 2-4 s.h.
102:221 Poverty, Planning, and Public Policy 3 s.h.
102:260 Transportation Policy and Planning 3 s.h.

Students fulfill the sectoral major requirement by completing a minimum of 9 semester hours of credit in courses offered in the planning program and by other University of Iowa departments and schools. Currently, there are four sectoral majors supported by faculty and course offerings within the planning program: transportation planning, housing and community development, economic development, and environmental planning. Students may design other sectoral majors, subject to faculty approval, or combine two sectoral majors. For example, students can major in health services planning with appropriate course work in the Departments 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. Examples of combined sectoral majors are environmental and economic development planning, and transportation and community development planning.

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 or related agency or organization. To obtain a 2-semester-hour reduction in graduation requirements, students must submit a brief paper summarizing and evaluating their experience. Internships usually are paid staff positions and are completed during the summer between the first and second years.

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 maybe 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.

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.

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 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.

Economics
Planning students who wish to strengthen their skills in economic analysis may enroll in a 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, consultant, analyst with a 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. or M.S. 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 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 students to select courses that focus on specialized aspects of transportation, such as freight transportation, regional planning, or transit systems.

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 assistantships. Assistantships typically require 10-12 hours of work per week. Faculty members advise students in planning, as well as in other academic units.

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.
Growth of cities in the United States and the emergence of planning as a means of resolving social problems that arise from urbanization; introduction to techniques of planning and development of public policies in fields such as housing, transportation, community, and economic development, and environmental quality.

102:123 Introduction to Environmental Policy and Planning 3 s.h.
Fundamental issues in environmental planning; past, present, and expected futures of particular ecosystems; desirability of those futures and feasibility of altering them.

102:133 Introduction to Economics of Transportation 3 s.h.
Overview of transportation markets—integrity, rural, urban, transportation modes—railway, highway, air, water, pipeline; issues in environmental and economic regulation, finance, policy, planning, management, physical distribution. Same as 6E:145, 94:133.

102:134 Methods of Transportation Analysis 3 s.h.
Interaction between urban form and transportation: public policies toward transportation, transportation technologies for cities, energy consumption, planning and management of transit systems and road networks, freight transport related to economic development. Same as 44:134.

102:143 Urban Transportation 3 s.h.
Policies and institutions for managing and urban planning transport; production, pricing, distribution of transit and highway services; city case studies, urban freight issues. Prerequisites: 6E:131 and 6E:132, or 44:133 or 44:134 or 102:101. Same as 44:143.

102:146 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; restructuring housing and neighborhoods for women; economic development and employment; the feminization of poverty; transportation, accessibility, safety for women; women in the global economy. Same as 131:146.

102:200 Analytic Methods in Planning I 1-3 s.h.
Methods used in planning and policy analysis: emphasis on application of statistical techniques and quantitative reasoning to planning problems; use of computers and data systems in planning analysis.

102:201 Analytic Methods in Planning II 2 s.h.
Integration of methods with the planning process; applications of multiple regression, population estimation and projection, and sample surveys; presentation of results to decision makers and the public.

102:202 Land Use Planning: Law and Practice 3 s.h.
Legal, social foundations of land use planning; comprehensive planning, zoning and subdivision review; legal aspects of land use, environmental planning; ordinance drafting; staff report writing; citizen participation.

102:203 History and Theories of Planning 3 sch.
History of urban planning in America as a reflection of social and economic forces; alternate planning philosophies and role and ethical choices open to planners.
102:205 Economics for Policy Analysis I 1-3 s.h.
Principles of economics for planners; concepts and techniques of microeconomics; income, inequality, and enforcement of public and private welfare; budgeting; expenditure, income, and capital budget analysis; estimation of demand and supply; price and quantity determination; costs and taxes; monetary and fiscal policies; and public welfare economics. May be repeated.
Prerequisite: 102:205 or consent of instructor.

102:206 Economics for Policy Analysis II 1 s.h.
Analysis of the structure and growth of urban areas, with emphasis on the role of government in the economy; tax and pricing policy; project evaluation, and social costs and benefits. May be repeated.
Prerequisite: 102:205 or consent of instructor.

102:208 Program Seminar in Planning Practice 1 s.h.
Planning process, roles of planners, professional ethics and standards. May be repeated.

102:209 Field Problems in Planning 3 s.h.
Semester long project revolving a current planning issue, usually with emphasis on a planning role or problem. Projects are coordinated with the opportunity to gain practical experience and are reported in the last week of the semester. May be repeated.

102:210 Urban and Regional Economics 2 s.h.
Urban economic analysis, including economic base, income expenditure, input-output, shift-share analyses, economic analysis of housing markets, segregation, residential and interregional mobility, provision of city services. Prerequisites: 102:205 and 102:206, or consent of instructor.

102:214 Land Use Planning II: Practice & Policies 3 s.h.
Downtown development and revitalization, neighborhood revitalization and preservation, growth management efforts at city and state levels, conflicts over locally unwanted land uses, urban design and planning, urban growth boundaries, regional planning, regional institutions, pollution sources, current programs, keys to success.

102:216 Conflict Resolution Process in Planning 2 s.h.
Conflict within communities, planners' responses to it; networking, negotiation, mediation, coalition-building, consensus-building; case studies, role-playing. Prerequisite: 102:205 or consent of instructor.

102:217 Spatial Analysis in Planning 3 s.h.
Data bases, GIS, planning support systems; spatial model building and use of spatial statistics; applications to substantive problems in transportation, environment, housing, economic development.

102:218 Environmental Processes and Institutions 2-4 s.h.
Principles and processes of natural environmental systems, environmental consequences of human actions, institutional efforts to reduce adverse environmental effects, future trends in environmental institutions and planning.

102:219 Practicum 1-3 s.h.
Qualified Mi-time internship of at least five months with a planning-related organization. Open only to graduate students in urban and regional planning.

102:221 Poverty, Planning and Public Policy 3 s.h.
Who and where are the poor in the U. S.; consequences of poverty; competing explanations of poverty historical survey and critique of policy; institutional responses to poverty; poverty measurement and alleviation; poverty and urban policy. Students from diverse departments interact with faculty, business executives, public sector leaders, and other speakers with special knowledge in transportation.

102:260 Seminar in Transportation Issues 1 s.h.
Students from diverse departments interact with faculty, business executives, public sector leaders, and other speakers with special knowledge in transportation.

102:264 Transportation Planning Process 2-3 s.h.
Technical issues, political interface, citizen involvement, environmental questions, and public-private roles; review, critique of transportation plans.

102:265 Transportation Regulation and Finance 3 s.h.
Theories and methods of exerting public control over passenger and freight transportation; social and environmental regulation; effects of changing finance; regulation and pricing policies, including privatization and user fees. Same as 44:265.

102:266 Transportation and Land Use Planning 3 s.h.
Transportation planning, theories and models; land use relationships, political, legal, institutional frameworks; neighborhood traffic controls; land use impacts on transit and alternative transportation modes.

102:291 Economic Development Analysis 3 s.h.
Traffic 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 federal housing policy and finance; low-income housing finance and development, public housing management; problems in low-income housing preservation; fair housing and mortgage market issues.

102:273 Community Housing Strategies 3 s.h.
State and local housing policy role of nonprofit sector; community development organization, public/private housing partnerships; non federal strategies for affordable housing; inclusionary zoning and other regulatory strategies; trust funds and land trusts.

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 7F:275, 34:275, 42:275, 44:275, 113:275.

102:291 Economic Development Analysis 3 s.h.
Urban and regional economies from macro, sectoral, and locational perspectives; emphasis on modern theories of industrial location and spatial theories of firm growth. Prerequisite: 102:206 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 and development. Prerequisite: 102:206 or consent of instructor.

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.


102:247 Watershed Planning and Management 3 s.h.
Causes and consequences of water pollution within watersheds; water quality management; pollutant point and nonpoint sources; legal, institutional, economic, and political opportunities and challenges of watershed based planning. Case studies.

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 53:163.

102:273 Property, Planning and Public Policy 3 s.h.
Critical analysis of federal housing policy and finance; low-income housing finance and development, public housing management; problems in low-income housing preservation; fair housing and mortgage market issues.

102:291 Economic Development Analysis 3 s.h.
Traffic 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 federal housing policy and finance; low-income housing finance and development, public housing management; problems in low-income housing preservation; fair housing and mortgage market issues.

102:273 Community Housing Strategies 3 s.h.
State and local housing policy role of nonprofit sector; community development organization, public/private housing partnerships; non federal strategies for affordable housing; inclusionary zoning and other regulatory strategies; trust funds and land trusts.

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 7F:275, 34:275, 42:275, 44:275, 113:275.

102:291 Economic Development Analysis 3 s.h.
Urban and regional economies from macro, sectoral, and locational perspectives; emphasis on modern theories of industrial location and spatial theories of firm growth. Prerequisite: 102:206 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 and development. Prerequisite: 102:206 or consent of instructor.

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.


WOMEN’S STUDIES
Chair: Florence Babb
Professor: Margery Wolf (Anthropology/Women’s Studies)

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 interdisciplinary 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.
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 want 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 University of Iowa department.
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 Saturday & Evening Classes and by Guided Correspondence Study.
In addition to the following courses, many departments sometimes offer additional courses focusing on women.

ANTHROPOLOGY
*113: 132 Latin American Studies Seminar 3 s.h.
*113: 140 Valuing Tradition(s) and Politics of Value 3 s.h.
113: 175 Gender and Development Studies 3 s.h.
*113:271 Seminar in Anthropological Linguistics and gender in cross-cultural perspective 3 s.h.

BUSINESS ADMINISTRATION
*8:242 Managing and Valuing Diversity 3 s.h.

ENGLISH
85:15 Women and Literature 3 s.h.
*8:34 Reading Novels 3 s.h.
*8:74 Selected American Authors 3 s.h.
8:99 Undergraduate Seminar 3 s.h.
*8:110 Selected Authors 3 s.h.
*8:138 Post-Colonial Studies 3 s.h.
*8:160 Selected Themes in Literary Works 3 s.h.
*8:432 Seminar Victorian Literature (Victorian women poets) arr.

HISTORY
16:15 Issues in Human History: Gender in Historical Perspective 3 s.h.
*16:139 Medicine, Science, and Social Change 3 s.h.
16:210 Readings: Medieval Women 3 s.h.
16:269 Readings on the American South: Gender and Race in American History 3 s.h.
16:281 Feminist Legal Harms Seminar: History and Theory 3-4 s.h.

JOURNALISM AND MASS COMMUNICATION
19:167 Gender and Mass Media 3 s.h.
19:256 Gender and Mass Communication 3 s.h.
*19:28 1 Master’s Practicum (women and the media) arr.
19:358 1 Ph.D. Research Practicum (women and the media) arr.

PSYCHOLOGICAL AND QUANTITATIVE FOUNDATIONS
*7P: 354 Seminar: Experimental Approaches in Counseling Research arr.

RELIGION
32:71 Sexual Ethics 3 s.h.

RHETORIC
*10: 199 Special Projects (rhetorics of American feminisms) arr.
10:604 Seminar: Contemporary Rhetorical Theory (rhetoric and French feminism) 2-4 s.h.

SOCIIOLOGY
34:161 The American Family 3 s.h.

SPANISH AND PORTUGUESE
35:158 Twentieth-Century Spanish Women Writers 3 s.h.
35:162 Latin American Women Writers 3 s.h.

THEATRE ARTS
49:118 American Women Playwrights: 19th and 20th Century 3 s.h.

Cross-Referenced Courses

131:40 Gender in the U.S. 3 s.h.
Sex roles, gender relations, feminine and masculine dimensions of American culture. Same as 45:40.

131:44 Lesbian Lives in the U.S. 3 s.h.
Diversity of lesbian experience in America; focus on issues of race, class, education, family, personal relationships. Same as 45:44.

131:52 Gender and Film 3 s.h.
Position of women in Hollywood, alternative cinemas; contributions of feminist film scholars, critics to field. Same as 45:52.

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.

131:108 Women and Society 3 s.h.
Women’s roles and status; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes in women’s social life cycles, implications for social institutions and processes; focus on contemporary United States. GE: cultural diversity. Same as 34:108.

131:111 Religion and Women 3 s.h.
Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GE: humanities. Same as 32:111.

131:119 Women, Marriage, and Family in Medieval Europe 3 s.h.
GE: foreign civilization and culture. Same as 10E: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. Prerequisite: 44:19 or introductory women’s studies course.

131:127 Women Writers of African Descent 3 s.h.
Evolution of Black women’s literature in the United States, Caribbean, Africa; selections from various genres. Same as 8:118, 129:127.

Courses

Core Courses

131:00 Cooperative Education Internship 0 s.h.
131:55 Gender, Race, and Class in the United States 3 s.h.
How the intersection 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, with emphasis on race, class, social orientation; work, family, culture, political and social change.
American history through women's eyes; emphasis on relationships between artistic, the body, cultural politics. Same as 45:140.

Women's sport involvement from ancient times to present; focus on social class, attitudes, religion, race, ethnicity, medical opinion, economic considerations, political events, educational philosophies that have influenced women's participation. Same as 28:278.

Central topic, such as new French feminisms, Marxist feminism, and politics, women's history as intellectual history. Same as 16A: 172.

From passage of Fourteenth Amendment to present; emphasis on suffrage movement, economic roles, educational patterns. Same as 16A: 172.

Social, popular, theatrical forms since the 1960s; emphasis on relationships between academics, the body, cultural politics. Same as 45:150.

How laws classify, construct, affect women; readings from tabloids including criminal, family, labor, constitutional law; selected works of feminist legal thought. Same as 30:174.

Negotiation of identity, how women's roles have changed in modern society; changes in politics, social organization, social relationship of sexes; education, sexuality, occupation, forms of social protest (feminism, socialism). GE: foreign civilization and culture. Same as 10E:148.

The Cultures of African Women 3 s.h.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Social, popular, theatrical forms since the 1960s; emphasis on relationships between academics, the body, cultural politics. Same as 45:150.

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.

Theory, research on origins of women's oppression, 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.

Social, popular, theatrical forms since the 1960s; emphasis on relationships between academics, the body, cultural politics. Same as 45:150.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.


Social, popular, theatrical forms since the 1960s; emphasis on relationships between academics, the body, cultural politics. Same as 45:150.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.

Women's sport, feminist critiques, alternate to sport. Same as 16A: 173.
Dean: Gary C. Fethke
Associate dean, faculty and development Robert Forsythe
Associate dean, administration and planning: Colin E. Bell
Associate dean, undergraduate programs: Lola L. Lopes
Associate dean, graduate programs: W. Bruce Johnson
Assistant dean, graduate programs: Nancy C. Noth
Assistant dean, operations: Myron P. Mustaine Jr.
Degrees: B. B.A., M.Ac., 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, John Pappajohn Entrepreneurial Center, Ira B. McCladrey 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 requires a minimum of 120 semester hours of credit, of which at least 48 must be earned in business courses and at least 60 must be earned in nonbusiness courses. Students admitted to the University before fall 1994 must earn at least 48 of the 120 semester hours in business courses and at least 48 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, all college course work attempted in the major, all college work attempted at The University of Iowa, all business course work attempted at The University of Iowa, and all course work in the major attempted at The University of Iowa.

**Common Requirements**

B.B.A. candidates must satisfy the following minimum common requirements or approved equivalents. For approved equivalents, consult the College’s Undergraduate Programs Office.

**GENERAL EDUCATION PROGRAM REQUIREMENTS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhetoric 10:1-2, or 10:3</td>
<td>4-5 s.h.</td>
</tr>
<tr>
<td>Natural science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Historical perspectives</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Foreign civilization and culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Humanities (including 8G: 1 Interpretation of Literature)</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Social sciences (excluding 6E: 1 and 6E:2)</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

**PREREQUISITES FOR ADMISSION TO THE COLLEGE**

6A: 1 Introduction to Financial Accounting
6A: 2 Introduction to Managerial Accounting
6E: 1 Principles of Macroeconomics
6E: 2 Principles of Macroeconomics
22S: 8 Quantitative Methods I

**BUSINESS CORE**

6B: 165 Business Policy
6E: 100 Economics for Business Decision Making
6F: 100 Introductory Financial Management
6J: 47 Introduction to Law
6J: 48 Introduction to Management
6K: 70 Computer Analysis
6K: 71 Statistical Analysis
6K: 100 Operations Management
6M: 100 Introduction to Marketing

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 information systems, and marketing. With the exception of the major in business administration, the requirements for each are established by the college’s departments.

**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 1, 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 grade-point average of at least 2.00.

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 credit 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.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: The following checkpoints are designed primarily for students who enter the University as freshman prebusiness students. In order to stay on the plan, students must maintain the grade-point average required for admission to the College of Business Administration and must apply for admission to the college by the college’s established deadline.

Before the third semester begins: 6E: 1, 22M: 17, and 22S: 8, or equivalents; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 6A: 1, 6A: 2, and 6E: 2, or equivalents; all General Education requirements; and at least half of the semester hours required for graduation

Before the seventh semester begins: business core requirements except for 6B: 165, approximately half of the course work in the major (varies by major), and three-quarters of the semester hours required for graduation

Before the eighth semester begins: approximately three-quarters of course work in the major (varies by major)

During the eighth semester: enrollment in 6B: 165, any remaining common requirements, all remaining course work in the major, and a sufficient number of semester hours to graduate

**Major in Business Administration**

This major permits students to participate in 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 by college’s departments (e.g., international business).

The requirements for the major in business administration are as follows.

Six business courses numbered above 100 (total of 18 semester hours), including at least four of these:

6A: 113 Taxes and Business Decisions 3 s.h.
6E: 125 International Economics 3 s.h.
6F: 117 Intermediate Financial Management 3 s.h.
6G: 130 International Finance 3 s.h.
6J: 161 Individual Behavior in Organizations 3 s.h.
6J: 151 Human Resource Management I 3 s.h.
6L: 161 Individual Behavior in Organizations 3 s.h.
6M: 134 Marketing Research 3 s.h.
6M: 151 International Marketing 3 s.h.

*Students may choose only one of these courses (total of 3 semester hours) to satisfy the four-course requirement for the major.

In addition to the required grade-point averages listed above, students in this major must have a grade-point average of at least 2.00 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. A grade-point average of at least 2.00 is required on all courses taken in the minor and on all courses in the minor taken at Iowa. Courses in the minor may not be taken pass/nonpass.

Calculus (22M: 16, 22M: 17, 22M: 25, or 22M: 35) 3-4 s.h.
Statistics (7P: 143, 22S: 8, 22S: 39, 22S: 102, 22S: 120, or 31: 142) 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.
6I: 47 Introduction to Law 3 s.h.
6I: 48 Introduction to Management 3 s.h.
6K: 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 each of the two semesters, and who have no hours of I or O those semesters, are recognized by inclusion on the president’s list.

Honor’s
The College of Business Administration Honor’s 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 honor’s 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).

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 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 2 percent of the graduating class, “with high distinction” to students in the next highest 3 percent, and “with distinction” to the next highest 5 percent. Ranking is based on students’ grade-point averages for all college-level study undertaken 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 admission. The college considers the following factors in evaluating 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.

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 (AP) 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 AP 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 12 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 one and one-half 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 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.A., up to 16 maybe 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, and 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 a N.

Second-Grade-Only Option
This option is not available to students in the College of Business Administration.

Correspondence Courses
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.

Probation and Dismissal
Students are placed on academic probation when their grade-point average in any of the following categories falls below 2.00: all course work undertaken, all business 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.

The certificate program is designed not only for undergraduate students who intend to pursue careers in international business but for any undergraduate interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates. The range of courses in the program permits students to tailor areas of specialization suited to their individual interests and to complement majors in both liberal arts and 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, maintain a grade-point average of at least 2.00 on all course work completed for the certificate, and complete 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 Undergraduate Programs Office.

INTERNATIONAL BUSINESS
6E:1 Principles of Macroeconomics 3-4 s.h.
6E:2 Principles of Macroeconomics 3-4 s.h.
Three courses in international business

INTERNATIONAL RELATIONS AND INSTITUTIONS
Two courses in international relations and institutions 6 s.h.

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, Swahili, or Yoruba

AREA STUDIES
Two courses that pertain to countries or areas in which the chosen language is spoken 6 s.h.

Returning for Baccalaureate Degrees

Returning for a Second Business Major
Persons who already have earned a B.B.A. degree from The University of Iowa College of Business Administration and who are not enrolled in a graduate or professional program may complete the requirements for another business major (except accounting). They must apply for readmission to the College of Business Administration and declare the appropriate major on their application. Those interested in pursuing a degree in accounting must apply for admission to the Graduate College to earn the Master of Accountancy degree (see “Accounting” in this section of the Catalog).

Students who return to The University of Iowa to complete another business major must meet only the requirements for that major; they need not meet the residence requirement. It is the student’s responsibility to submit a degree application by the deadline date established by the Office of the Registrar upon completion of the requirements for the second major so that a notation can be placed on their permanent record.

Students who hold a bachelor’s degree from another college or university may not complete a second business major at The University of Iowa. They may apply for admission to complete an additional degree (see “Returning for an Additional Bachelor’s Degree”).
Returning for an Additional Bachelor’s Degree

Persons who hold a bachelor’s degree from another University of Iowa college (for example, a B.A., B.S., B. M., or B.F.A. from the College of Liberal Arts, a B.S.N. from the College of Nursing, or a B.S.E. from the College of Engineering) and who are not enrolled in a graduate or professional program may return for an additional bachelor’s degree from the College of Business Administration.

They must satisfy all undergraduate admission requirements to the College of Business Administration. Once admitted, they must satisfy the College of Business residence requirement.

Students must complete a minimum of 24 semester hours of University of Iowa course work in business. At least two-thirds of the required course work in the major must be taken in the major department at The University of Iowa.

In addition, students must complete a minimum of 48 semester hours in business course work and at least 60 semester hours in nonbusiness course work in order to graduate. (Students admitted to The University of Iowa before fall 1994 must complete 48 semester hours in business course work and at least 48 semester hours in nonbusiness course work.)

Students also must satisfy all common course requirements for the Bachelor of Business Administration degree and must satisfy all grade-point-average requirements to remain in good academic standing and qualify for graduation.

Students with Baccalaureates from Other Institutions

Students with a bachelor’s degree from another college or university may apply for admission to The University of Iowa to earn an additional undergraduate degree from the College of Business Administration. The requirements are the same as those listed under “Returning for an Additional Bachelor’s Degree.”

Accounting as a Second Degree

Students who hold a bachelor’s degree in a nonbusiness area, either from The University of Iowa or from another college or university, may in some cases be considered for admission to the College of Business Administration to pursue a second undergraduate major in accounting. Students interested in earning a second degree with a major in accounting should consult with the department to discuss the B.B.A. or Master of Accountancy (M.Ac.). For more information see “Accounting” in this section of the Catalog.

Students may not earn a second B.B.A. degree in accounting if they already hold a B.B.A. from The University of Iowa.

Combined Business and Liberal Arts Degree

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 Accountancy (M.Ac.); Master of Arts in 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.

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.

M.B.A. courses are listed under “Courses” later in this section of the Catalog.

Full-time, On-Campus Program

The M.B.A. requires 60 semester hours, including four courses in an area of concentration and six elective courses in business or from another area of the University. Students may transfer up to 9 semester hours from another AACSB-accredited institution.

PLAN OF STUDY

First Semester

6N:211 Marketing Management or 6N:225 Managerial Finance 3 s.h.
6N:213 Managerial Economics 3 s.h.
6N:215 Corporate Financial Reporting 3 s.h.
6N:216 Data and Decisions 3 s.h.
6N:217 Ethics 1 s.h.
6N:227 Human Resource Management 2 s.h.

Second Semester

6N:212 Organizational Behavior 3 s.h.
6N:211 Marketing Management or 6N:225 Managerial Finance 3 s.h.
6N:218 International Economic Environment of the Firm 3 s.h.
6N:229 Operations Management Concentration/Elective 3 s.h.

Third Semester

Concentrations/Electives 15 s.h.

Fourth Semester

6N:240 Strategic Management and Business Policy 3 s.h.
Concentrations/Electives 12 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, finance, product development and management, human resources and organizational performance, entrepreneurship, management information systems, operations management, and marketing. Individual students may devise their own concentration area, subject to approval by the School of Management.

Electives

The student chooses 18 semester hours of graduate-level electives. Courses outside the College of Business Administration must be approved by the School of Management.
ADMISSION
Applicants to the M.B.A. program must submit a complete application file, including the following:
- a completed School of Management application form and fee;
- official transcripts of all undergraduate and graduate course 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 resume and cover letter; and
- at least three letters of reference from former instructors or employers.

Applicants whose native 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 are available from the University’s Office of Admissions.

Application Deadlines
Application deadlines for the full-time, on-campus M.B.A. program are as follows. Students may enter in fall 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.
- July 1 – U.S. citizens and permanent residents applying for fall (August). Applications received after April 15 are reviewed on a space available basis.

Evening M.B.A. Program
The Evening M.B.A. Program is designed for working professionals who recognize the long-term benefits of a graduate business degree. Sponsored jointly by the College of Business Administration and the Division of Continuing Education, the program is designed to prepare college graduates for a professional career in business or the public sector. Courses are offered each semester during evening hours in Cedar Rapids, the Quad Cities, and Newton. The curriculum is designed for students representing a variety of backgrounds, undergraduate majors, and professional experience. Previous course work in business is not required.

PLAN OF STUDY
Degree requirements include an integrated business core of 10 courses, which develop competency in general management skills and key functional areas of business, and 5 electives, for a total of 45 semester hours. Elective courses, which contribute to the development of an area of expertise and foster a deeper understanding of management and business practices, are available in accounting, entrepreneurship, finance, human resources/organizational performance, management information systems/operations, management, and marketing. Students who wish to earn an M.B.A. in three years must complete two courses each fall and spring semester and one course during the summer. Students have some latitude in course sequence and length of time allowed to complete the plan of study.

First Year
- 6N:211 Marketing Management 3 s.h.
- 6N:212 Organizational Behavior 3 s.h.
- 6N:215 Corporate Financial Reporting 3 s.h.
- 6N:216 Data and Decisions 3 s.h.
- Business elective (summer session) 3 s.h.

Second Year
- 6N:213 Managerial Economics 3 s.h.
- 6N:217 Ethics 1 s.h.
- 6N:225 Managerial Finance 3 s.h.
- 6N:227 Human Resource Management 2 s.h.
- 6N:229 Operations Management 3 s.h.
- Business elective (summer session) 3 s.h.

Third Year
- 6N:228 International Economic Environment of the Firm 3 s.h.
- 6N:240 Strategic Management and Business Policy 3 s.h.
- Business electives 6 s.h.
- Business elective (summer session) 3 s.h.

ADMISSION
Students may apply for admission for the fall or spring semester; applications are accepted all year. Admissions decisions are based on the quality of work experience, undergraduate grade-point average, GMAT score, letters of reference, and completed application materials.

Application Deadlines
Application deadlines for admission 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.

Information about the program, fees, and application procedures may be obtained by writing or calling the School of Management.

Dual 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.S.N. 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 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 grade-point average of at least 3.50, clearly defined their career goals, and indicated the intent to pursue both degree programs on a full-time basis.

Master of Arts
The Master of Arts program in business administration is designed for students seeking specialization in one of two 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 or in 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. Interested students should contact the department sponsoring the degree for complete program information.

ADMISSION
Applicants to the Master of Arts programs must submit a complete application file, including the following:
- a completed application to the Graduate College;
- official transcripts of all undergraduate and graduate course work submitted to the Office of Admissions by each institution attended;

Information about the program, fees, and application procedures may be obtained by writing or calling the School of Management.

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 over 21 months. Classes begin in mid-August with a five-day residency week in Iowa City followed by classes one day a week on alternating Fridays and Saturdays. Participants progress through the program together as a group.
official Graduate Management Admission Test (GMAT) scores submitted to the Office of Admissions;

the completed supplemental application form with essay responses, and a resume and cover letter; and

at least three letters of reference from former instructors or employers.

Applicants whose native 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 are available from the University’s Office of Admissions.

Application Deadlines
Application deadlines for the Master of Arts programs are as follows. Students may enter in fall, spring, and summer.

February 1 – Foreign applicants for summer or fall who are applying for financial assistance from The University of Iowa.

March 1 – Foreign applicants for summer or fall who are not seeking financial assistance from The University of Iowa.

May 1 – U.S. citizens and permanent residents applying for summer enrollment.

July 15 – U.S. citizens and permanent residents applying for fall enrollment.

October 1 – Foreign applicants for spring enrollment.

December 1 – U.S. citizens and permanent residents applying for spring enrollment.

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. Course work and related experience enable students to achieve competence in economic theory, statistical methods, and behavioral science as well as expertise in a major and minor 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 programs accredited by the American Association of Collegiate Schools of Business (AACSB), take 60 semester hours of course work. Additional courses may be required to ensure satisfactory completion of business prerequisites and/or the Graduate College requirement of 72 semester hours of graduate credit which includes courses taken before entering The University of Iowa Ph.D. program. Interested students should contact individual departments for complete program information.

Prerequisites
The AACSB common body of knowledge requirements must be satisfied with undergraduate or graduate courses, including those in accounting, finance, management, marketing, organizational behavior, quantitative methods, and the economic and legal environment of profit and/or nonprofit organizations.

Core Courses
Core courses develop research competence and provide background for specialized study. Graduate course requirements include behavioral sciences (3 semester hours), economics (6 semester hours), and research methods/statistics/quantitative analysis (12 semester hours).

Doctoral candidates consult with their advisors to develop a plan of study that reflects the background and interests of individual students and satisfies core requirements.

Major Area of Study
At least 12 semester hours of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resources management, management information systems, marketing, operations management, organizational behavior, or quantitative methods.

Minor Area of Study
Students must complete a minimum of 9 semester hours of doctoral-level courses beyond the Ph.D. core course requirements. 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 the major area of study. The examination committee is made up of a minimum of three faculty members. Students also complete a written examination in the minor area of study if required by the student’s major department or minor study department.

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 the major department. Students are required to complete 15 semester hours of dissertation credit. Researching and writing the dissertation typically requires two years of full-time effort.

Final Examination
The dissertation must be defended in an oral examination attended by the dissertation committee members. The examination also is open to other interested faculty members and graduate students.

ADMISSION
Applicants to the Ph.D. program must submit a completed application for admission to the Graduate College. Official transcripts from all institutions attended, official Graduate Management Admission Test (GMAT) scores, and three 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.

Applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL) and arrange to have their scores submitted to the University.

Application Deadlines
Application deadlines for the Doctor of Philosophy are as follows. Students may enter in fall, spring, or summer.

February 1 – Foreign applicants for summer or fall who are applying for financial assistance from The University of Iowa.

March 1 – Foreign applicants for summer or fall who are not applying for financial assistance from The University of Iowa.

March 1 – U.S. citizens and permanent residents applying for summer or fall enrollment. 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
Master of Accountancy (M.Ac.)
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 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 rooms, a computer laboratory, two auditoriums, two computer classrooms, a behavioral laboratory, a restaurant, a business library, 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 Pappajohn 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 (FMI) promotes cooperation between members of the investments industry and The University of Iowa by supporting curriculum and teaching innovation at the College of Business Administration, providing continuing education for investment professionals, and disseminating important research advances. The FMI’s chief goal is to unite students, practitioners, and academics to advance education and learning in finance through an ongoing dialogue in teaching and research.

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.

John Pappajohn Entrepreneurial Center

The John Pappajohn Entrepreneurial Center develops entrepreneurship education for University of Iowa students and private citizens throughout Iowa. The center also develops programs that promote business development and entrepreneurship statewide; promotes technology transfer; and acts as a broker for venture capital, helping to link entrepreneurs with investors.

Entrepreneurship Program

The College of Business Administration draws on resources of the John Pappajohn Entrepreneurial Center to offer a program designed to provide students with the skills necessary to run a business successfully. In collaboration with the University’s engineering and health sciences colleges, the program offers courses dealing with all aspects of starting, acquiring, and running a business. Business people and University faculty members provide wide-ranging instruction that combines business experience and academic curriculum.

Engineering and health sciences students should consult their respective colleges for information about certificate programs, requirements, and so forth.

Entrepreneurship courses are listed under “Courses” later in this section of the Catalog.

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 forums.

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 fosters quality accounting and auditing education and research at The University of Iowa by encouraging and participating in the creation and dissemination of knowledge in the academic, business, government, and professional accounting communities.

Small Business Development Center

Since 1981, The University of Iowa Small Business Development Center has played an important role in helping enterprising Iowans to successfully manage their own businesses. The center helps empower, nurture, and provide support for small business owners and entrepreneurs. Its personnel are trained to meet the various needs of small business management, including market, business, and financial planning, cash flow analysis, human resource planning, product commercialization, market research and analysis, strategic planning, international trade, and advertising and public relations.

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

Relationships with alumni are maintained by the director of communication and external relations in the Dean’s Office. The college circulates its magazine, BUSINESS AT IOWA, to alumni and hosts events each semester ranging from individual campus visits to receptions in cities nationwide. The Business Student Ambassadors, an undergraduate student organization, serve as hosts and guides for alumni when they visit the college.

Courses

Interdepartmental Undergraduate Courses

6:000 Cooperative Education Internship 0 s.h.
6B:000 Cooperative Education Internship 0 s.h.
6B: 1 Business Issues in Fiction and Film 3 s.h.
6B: 99 Orientation to Business 1 s.h.
6B: 101 Topics in Business arr.
6B: 189 Undergraduate Honors Seminar 1 s.h.
6B: 188 Honors Project arr.
6B: 185 Business Policy 3 s.h.
6B: 188 Honors Project arr.
6B: 188 Undergraduate Honors Seminar 1 s.h.
6B: 185 Business Policy 3 s.h.
6N:000 Cooperative Education Internship-M.B.A. 0 s.h.
6N:200 Directed Readings -M.B.A. 1-3 s.h.
6N:210 Models for Decision Support 3 s.h.

For M.B.A. Students

See individual department listings for M.B.A. elective courses.
6N:211 Marketing Management 3 s.h.
Concepts, principles, models of marketing management; focus on strategic planning, management decision making, and implementation of marketing programs.

6N:212 Organizational Behavior 3 s.h.
Managerial implications of individual, team, and intra-organizational behaviors.

6N:213 Managerial Economics 3 s.h.
Models of consumer and firm behavior with applications; market equilibrium and structure; pricing decisions.

6N:215 Corporate Financial Reporting 3 s.h.
Financial and managerial accounting in the organization; financial accounting focus on reporting by organizations to investors, other external parties; managerial accounting focus on costing and control for basic units within an organization.

6N:216 Data and Decisions 3 s.h.
Introduction to decision making using quantitative modeling; basic probability, Bayes rule, decision trees, sampling distributions, and statistical inference; multivariate analysis using linear programming and regression; computer analysis in a spreadsheet environment. Graduate standing required.

6N:217 Ethics 1 s.h.
Introduction to ethical theories, application of these theories to business problems and situations; business' obligations to society; individuals' responsibilities to organizations.

6N:225 Managerial Finance 3 s.h.
Asset valuation and capital budgeting under uncertainty, interactions with "efficient" capital markets, analyzing financial statements, decisions on capital structure, issuing nontraditional financial instruments, coping with mergers. Pre or corequisite: 6N:215.

6N:226 Statistical Methods 3 s.h.

6N:227 Human Resource Management 2 s.h.
Introduction to theory and practice.

6N:228 International Economic Environment of the Firm 3 s.h.
Determinants of business cycle and asset price fluctuations in an open economy (movements in real output, interest rates, inflation, exchange rates); monetary and fiscal policy in international co-movements. Prerequisite: 6N:233.

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:216.

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.

Nondepartmental Graduate Courses

6T:300 Seminar on Teaching 3 s.h.
Education objectives, syllabi preparation, methods of instruction, classroom management, instructor and student misbehavior, and evaluation.

Entrepreneurship Courses

See “John Pappajohn Entrepreneurial Center” earlier in this section of the Catalog.

6T: 127 Entrepreneurship and New Business Formation 3 s.h.

6T:206 Innovation and Change 3 s.h.
Environment necessary for innovation; innovation applied to products, services, processes; strategies to regain competitive advantage; management of stress created by innovation and change. M.B.A. student standing, or senior or graduate standing in the College of Engineering, or consent of instructor required.

6T:207 Entrepreneurship through Personal Acquisitions 3 s.h.
Locating and acquiring a business; considerations and strategies for entrepreneurship; entry mechanisms; buying an existing business versus starting a new business; valuation, financing, negotiation. M.B.A. student standing, or senior or graduate standing in the College of Engineering, or consent of instructor required.

6T:208 Entrepreneurship: Business Consulting 3 s.h.
Operating problems in product design; the competitive environment for independent businesses; development of solutions for unique problems. M.B.A. student standing, or senior or graduate standing in the College of Engineering, or consent of instructor required.

6T:209 Legal Aspects of Entrepreneurship 3 s.h.
Introduction to the legal system governing ownership and operation of independent business; compliance with regulations, intellectual property, business formation, partnership and shareholder agreements, acquisitions. M.B.A. student standing, or senior or graduate standing in the College of Engineering or a health sciences college, or consent of instructor required.

6T:210 Developing Professional Service Business 3 s.h.
Use of professional skills and fictional knowledge in creating a specialized service business. M.B.A. student standing, or senior or graduate standing in the College of Engineering or a health sciences college, or consent of instructor required. Same as 53:210.

6T:211 Data Product Design and Development 3 s.h.
Processes, techniques, and technology required for using data as raw material for new products; experience in creating a venture and venture plan specific to the industry.

6T:212 The Management of Technology Transfer 3 s.h.
Relationships between technology and business creation, growth, and survival; approaches to managing commercialization of new technologies through product development; assessing an organization's capacity for innovation.

6T:213 Entrepreneurship through Franchising 3 s.h.
Roles of franchisers and franchisees as entrepreneurs; markets, regulations, COB, consulting responsibilities, franchise fees; projects requiring analysis of a franchise opportunity.

6T:219 Managing the Entrepreneurial Process 3 s.h.
How to evaluate business opportunities; acquire necessary resources, value existing businesses, manage new ventures.

ACCOUNTING

Head: Daniel W. Collins
Professors: Daniel W. Collins (Henry B. Tippie Professor), Douglas V. De Jong (director, Ira B. McCladrey Institute), Willis R. Greer Jr., W. Bruce Johnson (Arthur Andersen Professor), Valdean C. Lembke (director, Professional Program in Accounting), Albert A. Schepanski
Associate professors: Ramamurthy Balakrishnan, Joyce E. Berg, Richard A. Grimlund, Morton Pincus, Richard M. Tabb
Assistant professors: Thomas J. Carroll, Amy E. Dunbar
Undergraduate degree: B.B.A. in Accounting
Graduate degrees: M.Ac.; Ph.D. in Business Administration

The Department of Accounting offers a broad education that prepares undergraduate and graduate students for careers in public accounting, private industry, government, and nonprofit organizations, and academia.

Professional Program

The professional program in accounting at The University of Iowa is a three-year, undergraduate program that leads to a B.B.A. in Accounting and a Master of Accountancy (M.Ac.).

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 a professional 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. Applicants who are accepted into the program at the beginning of their junior year, receive the B.B.A. after the successful completion of the first two years of the program. The nonthesis M.Ac. requires 30 graduate semester hours beyond the 120 undergraduate semester hours required for the B.B.A. in accounting. For more information, see “Program 1.”

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.Ac. 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. In addition, graduate level courses emphasize analytical reasoning and critical thinking.

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 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 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 M.Ac. program 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 each successful applicant.

Graduate College must include scores attained on the Graduate Management Admission Test (GMAT). Admissions are considered throughout the calendar year.
Program 1

This program is for students who have completed their preprofessional program at The University of Iowa and 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 proficiency business core courses must be completed prior to admission to the professional program.

6A:1 Introduction to Financial Accounting (grade of B- or higher) 3 s.h.
6A:2 Introduction to Managerial Accounting (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.
6K:70 Computer Analysis 3 s.h.
6K:71 Statistical Analysis 3 s.h.
22M: 17 Quantitative Methods I 4 s.h.
22S:8 Quantitative Methods II 4 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 encouraged 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 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:221 Financial Reporting: Theory and Practice 3 s.h.
6A:231 Taxes and Business Strategy 3 s.h.
*Electives 6 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 electives 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 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:230 Advanced Auditing 3 s.h.
*Electives 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 (excluding courses taken during the first two years of the program) also must be completed.

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.
6A:232 Contemporary Issues in Accounting 3 s.h.
6A:233 Organization Design and Control 3 s.h.
6A:245 Financial Information and Capital Markets 3 s.h.

Program 2

This program is for students who have a bachelor’s degree in business who have concentrated their study in an area other than accounting (e.g., finance).

Typically, 51 semester hours are required for the M.Ac., including 21 semester hours of undergraduate accounting courses, 15 semester hours of graduate-level accounting courses, and 15 semester hours of other graduate-level courses. Specific content of elective course work is determined by both student’s background and areas of interest. A minor area chosen from elective categories must be taken. A total of at least 21 semester hours of 200-level courses must be completed.

Program 3

This program is for students who have earned a bachelor’s degree but who have limited or no prior academic study in business or accounting. Each student’s program is specially designed to eliminate academic deficiencies in quantitative methods, business, and accounting. Course work to eliminate these deficiencies is incorporated into a plan of study lasting approximately two-and-one-half calendar years. For students with no previous accounting or business study, the following courses are required (total of 57 semester hours).

ACCOUNTING

6A: 130 Accounting for Management Analysis and Control 3 s.h.
6A: 131 Income Measurement and Asset Valuation 3 s.h.
6A: 132 Valuation of Financial Claims 3 s.h.
6A: 133 Introduction to Taxation 3 s.h.
*6A: 141 Advanced Tax Topics 3 s.h.
6A: 144 Auditing 3 s.h.
*6A: 145 Accounting for Multi-Segment Enterprises 3 s.h.
*6A: 146 Government and Not-For-Profit Accounting 3 s.h.
6A:220 Design and Use of Cost Management Systems 3 s.h.
6A:221 Financial Reporting: Theory and Practice 3 s.h.
6A:230 Advanced Auditing 3 s.h.
6A:231 Taxes and Business Strategy 3 s.h.

*One of these can be replaced with one of the two available graduate-level accounting electives (6A:233 or 6A:245).

BUSINESS AND QUANTITATIVE METHODS

6A: 148 Business Law 3 s.h.
6A:235 Managerial Accounting 3 s.h.
6K:70 Computer Analysis 3 s.h.
6N:213 Managerial Economics 3 s.h.
6N:215 Corporate Financial Reporting 3 s.h.
6N:216 Data and Decisions 3 s.h.
6N:225 Managerial Finance 3 s.h.

Joint Accounting and Law Program

A joint program with the College of Law permits up to 12 semester 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.Ac. degree.

Graduate Program

Doctor of Philosophy

See “Interdepartmental Graduate Programs” in the College of Business Administration introductory 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:000 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.
Basic topics in cost behavior, measurement, accumulation; use of cost data for relevant analysis, budgeting, performance evaluation. Prerequisites: 6A: 1, 6E: 1, and 22M: 17.

6A:20 Accounting for Nonbusiness Students 3 s.h.
Financial and managerial accounting; accounting reports—their elements, format, interrelationship, interpretation, and use; corporate annual reports, cost behavior, decision analysis, the new manufacturing environment; survey.

For Undergraduates and Graduates

6A: 133 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. Sophomore or consent of adviser required. Prerequisite: 6A:2 or equivalent.

6A 130 Accounting for Management Analysis and Control 3 s.h.
Advanced topics in cost estimation, measurement, accumulation; use of cost data for decision-making, performance evaluation in multi-unit organizations. Admission to professional program in accounting required.

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 68: 181. Senior standing required.

6A: 145 Accounting for Multi-Segment Enterprises 3 s.h.
Accounting and reporting standards, practices for business combinations, multinational enterprises, joint ventures, partnerships, business segments, 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. Senior standing required. Prerequisite: 6A: 132 or 6A:240.

6A: 148 Business Law 3 s.h.
Contracts, sales, debtor creditor relations, business organizations, other aspects of law applied to business. Senior standing required. Prerequisite: 6J:47.

6A: 170 Special Topics in Accounting arr.
Consent of instructor required.

Primarily for Graduates

6A:220 Design and Use of Cost Management Systems 3 s.h.
Development of cost accumulation and reporting systems for a firm’s strategy and structure; how activity based cost management systems increase a firm’s competitiveness by managing its costs, processes, people. Prerequisite: 6A:130 or 6A:235 or consent of instructor.

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, strategies; investment strategies, financial policies; emphasis on tax planning, evaluating tax consequences of business decisions. Graduate standing in business required. Prerequisite: 0N:215 or equivalent or consent of instructor.

6A:232 Contemporary Issues in Accounting 3 s.h.
Accounting reporting issues being addressed by FASB; recognition and measurement issues related to financial instruments, measuring and reporting comprehensive income, improving disclosure effectiveness.

6A:233 Organization Design and Control 3 s.h.
Modern organization, role of reformation in organization design; performance evaluation, incentive schemes. Graduate standing in business required. 6A:220 recommended.

6A:235 Managerial Accounting 3 s.h.
Introduction to cost accumulation and reporting systems, cost management systems and managerial and divisional performance evaluation; appropriate use of cost data for short- and long-run decisions; product costing in manufacturing and service industries. Prerequisite: 6N:215 or consent of instructor.

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. Prerequisite: 6A:235 or 6N:215 or equivalent.

6A:240 Financial Accounting Standards and Analysis 3 s.h.
Accounting model, underlying measurement concepts, role of assets, liabilities, related issues of income determination; emphasis on economic substance of transactions, evaluation of performance in one of the following: Prerequisite: 6N:215.

6A:245 Financial Information and Capital Markets 3 s.h.
Use of corporate financial statements for investment and lending decisions; emphasis on financial analysis techniques, valuation, business analysis, cash flow projections, credit scoring, related research evidence. Prerequisite: 6A:240 or equivalent.

6A:281 Advanced Research Seminar 3 s.h.
Literature on economics of accounting choice, capital markets, audit policy and methods, behavioral accounting, principal agent and signaling modeling, experimental economics. Open only to doctoral students.

6A:286 Seminar in Accounting Research 3 s.h.
Forum on current research in accounting, related disciplines: faculty, student, guest papers, Ph.D. dissertation proposals. Open only to doctoral students.

6A:287 Seminar in Selected Accounting Topics 3 s.h.
Individual study, research or problem. Doctoral student standing and consent of instructor required.

Doctoral student standing and consent of instructor required.

ECONOMICS

Chair: Raymond Riezman
Professors emeriti: Anthony Costantino, Larry Sontag, S.Y. Wu
Adjunct professors: J. Richard Zecher, Michael Balch, Andreas Blume, Dean Corbue, Beth Ingram, Alejandro Manelli, B. Ravikumar, John Solow
Assistant professors: Yong-Gwan Kim, Ignacio Lobato

Undergraduate Programs

The baccalaureate programs in economics provide an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations, and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics also provides excellent preparation for law and for graduate study in fields such as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate degrees in economics–the Bachelor of Arts (B.A.) and Bachelor of Science (B.S.) in the College of Liberal Arts and the Bachelor of Business Administration (B.B.A.) in the College of Business Administration.

The B.A. program is designed to achieve a balance between economic theory, mathematical tools, and field applications. The B.S. program maintains the same balance but...
places more emphasis on developing analytic
tools; it prepares students for graduate work in
economics or related business and technical
fields. The B.B.A. emphasizes the economic
foundations of the business fields: accounting,
finance, marketing, business law, and
management.

The requirements for the B.B.A. are described
here; those for the B.A. and B.S. are described
in the College of Liberal Arts section of the
Catalog. In planning a program of study,
students should be aware that the order in
which courses are taken is important; some
courses are prerequisites for others. The
Handbook for Economics Majors available from
the department office, offers help in planning an
economics degree program.

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.

6E: 105 Macroeconomics 3 s.h.
Two field courses numbered from
6E:170 through 6E: 189 6 s.h.

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 degree with geography or 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,
imperial 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:200 Mathematics for Economists I 3 s.h.
6E:203 Macroeconomics I 3 s.h.
6E:204 Macroeconomics I 3 s.h.
6E:201 Statistical Methods 3 s.h.
6E:205 Macroeconomics II 3 s.h.
6E:206 Macroeconomics II 3 s.h.
6E:221 Econometrics 3 s.h.

Second Semester

6E:100 Economics for Business Decision Making 3 s.h.
6E:104 Macroeconomic Theory 3 s.h.
6E:117 Money, Banking, and Financial Markets 3 s.h.
6E:125 International Economics 3 s.h.
6E:133 Environmental and Natural Resource Economics 3 s.h.
6E:141 Economics of American Industries 3 s.h.
6E:150 Introduction to Economic History 3 s.h.
6E:163 Comparative Economics 3 s.h.

Third Semester

6E:202 Principles of Macroeconomics 3-4 s.h.
Organizations, institutions, and markets in modern economic systems; role
of money, prices, and interest; allocation of resources and
economic growth; fundamental international trade; principles of social
studies (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; fiscal policy; economic growth; development of
time series data sets; principles of international trade; principles of
social sciences (except for 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, and policies; representative topics include
labour markets, environment, consumer protection, the
effect on drugs, American economic competitiveness, health care
delivery systems, and choice; GE: social sciences (except for
B.B.A. students).
6E:50 Introduction to Economic and Social Statistics 3 s.h.
Statistical methods applied to problems in economics; regression
analysis, contingency tables, goodness of fit measures, simple
linear regression modeling, presentation of economic statistics, index
number construction, survey methods. Same as 44:85.
6E:99 Internship 1 s.h.
Open only to students participating in the Washington Center for
Learning Alternatives and other approved internship programs.
Consent of undergraduate director required.

Fourth Semester

6E:206 Macroeconomics 11 3 s.h.
6E:207 Macroeconomics 11 3 s.h.
6E:210 Statistical Methods 3 s.h.
6E:215 Macroeconomics II 3 s.h.
6E:216 Macroeconomics II 3 s.h.
6E:220 Applied Econometrics 3 s.h.
6E:221 Econometrics 3 s.h.
6E:222 Applied Econometrics 3 s.h.
6E:223 Applied Econometrics 3 s.h.

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 grade-point
average of at least 3.20 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 an 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 they may be taken simultaneously
they are approved for College of Liberal Arts
General Education in social sciences.

6E:000 Cooperative Education Internship 0 s.h.
6E: 1 Principles of Microeconomics 3-4 s.h.
Organizations, institutions, and markets in modern economic systems; role
of money, prices, and interest; allocation of resources and
economic growth; fundamental international trade; principles of social
studies (except B.B.A. students).
6E:2 Principles of Microeconomics 3-4 s.h.
National income and output, employment and inflation; money, credit,
government finance; fiscal policy; economic growth; development of
time series data sets; principles of international trade; principles of
social sciences (except for 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, and policies; representative topics include
labour markets, environment, consumer protection, the
effect on drugs, American economic competitiveness, health care
delivery systems, and choice; GE: social sciences (except for
B.B.A. students).
6E:50 Introduction to Economic and Social Statistics 3 s.h.
Statistical methods applied to problems in economics; regression
analysis, contingency tables, goodness of fit measures, simple
linear regression modeling, presentation of economic statistics, index
number construction, survey methods. Same as 44:85.
6E:99 Internship 1 s.h.
Open only to students participating in the Washington Center for
Learning Alternatives and 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 22M:17, and 60 semester hours; or
consent of instructor.
6E: 104 Macroeconomic Theory 3 s.h.
6E:105 Macroeconomics 3 s.h.
6E:117 Money, Banking, and Financial Markets 3 s.h.
6E:125 International Economics 3 s.h.
6E:133 Environmental and Natural Resource Economics 3 s.h.
6E:141 Economics of American Industries 3 s.h.
6E:150 Introduction to Economic History 3 s.h.
6E:163 Comparative Economics 3 s.h.
6E:164 Economics in Transition 3 s.h.
Theory and experience of central economic planning; causes of communism’s collapse in eastern Europe, former Soviet Union; major episodes of economic reform; comparison of problems of transformation to the market system. Prerequisites: 6E:1 and 6E:2, or consent of instructor.

6E:171 Antitrust Legal and Economic Analysis 3 s.h.
Topics in federal antitrust policy; merger policy, monopolization, predatory pricing, collusion, vertical restrictions, resale price maintenance, enforcement; case law, economics literature. Prerequisite: 6E:100 or 6E:104 or 91:208 or consent of instructor. Same as 91:291.

6E:172 Law and Economics 2-3 s.h.
Law examined through analytic 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 in exchange, balance of payments, foreign exchange, macroeconomics in open economy. Prerequisites: 6E:100 or 6E:104, and 6E:105; or graduate standing.

6E:174 Monetary Economics 3 s.h.
Demand and 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, demand, investments in human capital, compensating wage differentials, long-term contracts, occupational choice, family decision, unions, immigration. Prerequisite: 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, taxation on resource allocation, 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, behavioral and strategic considerations in 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, 7hanguage, 6E:100 or 6E:104 for economics majors; 6E:1 and 16A:51 for non-economics majors. Same as 16A:144.

6E:179 History of Economic Thought 2-3 s.h.
Evolution of economics as a social science; ideas of Smith, Ricardo, Jevons, 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 and multiple linear models, regression, and hypothesis testing; serial correlation, heteroskedasticity, generalized least squares estimation, specification analysis, errors in variables; emphasis on interpretation, application of econometric models, methods, use of computers. Prerequisite: 22S:120 or equivalent.

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, 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 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 undergraduates may enroll in courses listed for graduate students.

6E:200 Mathematics for Economists 3 s.h.
Constrained optimization, difference equations, differential equations, dynamics, difference equations. Prerequisites: 6E:211 and 6E:221.

6E:201 Statistical Methods 3 s.h.
Probability theory, statistical inference, linear regression model, econometric methods. Prerequisites: 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 cooperative market structures. Prerequisite: 6E:200 or 6E:203 or one year of calculus.

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 Microeconomics II 3 s.h.
Dynamic macroeconomic models; stochastic macroeconomics; time consistency and microeconomic 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:201 and 6E:205.

6E:212 Mathematical Economics II 3 s.h.
Theories 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.
Information, risk, and insurance; risk and risk aversion; temporal resolution of uncertainty. Prerequisite: 6E:211.

6E:221 Econometrics 3 s.h.
Statistical reference in single and multiple equation stochastic models, models with nonindependent or nonstationarily distributed error structure, dynamic models, OLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests. Prerequisites: 22S:154 or equivalent.

6E:222 Applied Econometrics 3 s.h.
Empirical problems; multiple linear regression, logit/probit, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisite: 6E:221.

6E:223 Econometric Theory I 3 s.h.
Statistical theory underlying econometric inference; emphasis on estimation, hypothesis testing in linear models. Prerequisite: 6E:221.

6E:224 Financial Economics 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/behavior forecasting. Prerequisite: 6E:214 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 multinational business; how to export; how to deal with international competition; international joint ventures; country studies. Consent of instructor required.

6E:235 International Trade Theory 3 s.h.
Tariff theory and policy. 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 II 2-6 s.h.
Current research in macroeconomics; development of research topics with emphasis on theoretical and 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 economics; 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 and models, including intertemporal models of labor markets; uncertainty and labor market activity; retirement decisions, economic theories of fertility; economics of discrimination; job search models; economic models of unions; bargaining and strikes, public sector labor market; determinants of income distribution; emphasis on empirical verification of theory. Prerequisites: 6E:205, and 6E:184 or 6E:221.

6E:251 Labor Economics 3 s.h.
Calculation and analysis of employment on prospects for future 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:184 or 6E:221.

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 marginalist, neoclassical, Keynesian thought; American economic thought, including institutional economics; varieties of socialist economics, ultraltradiant thought. Consent of instructor required.

6E:271 Industrial Organization 2-4 s.h.
The firm, monopolistic competition, oligopoly and workable competition; international organization, nature of equilibrium under uncertainty. Prerequisites: 6E:205 and 6E:211.

6E:272 Economics of Organization 2-4 s.h.
Design of HG222 organization, incentive mechanisms in achieving efficient allocations; not-for-profit activities, their welfare implications. Prerequisite: 6E:205.

6E:281 Economics of the Government Sector 3 s.h.
Role and effects of major taxes 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 Economics Seminar Consent of instructor required.

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 Macroeconomics Consent of instructor required.

6E:322 Workshop in Macro and Monetary Economics Consent of instructor required.
FINANCE
Chair: Jarjisu Sa-Adu
Professors: Douglas Foster, Jarjisu Sa-Adu, Richard A. Stevenson, Emmett J. Vaughan (Partington Professor), Paul Weller
Professors emeriti: Walter Krause, Charles E. Marbery, Robert M. Soldofsky
Associate professors: David Bates, Thomas George, Panee Handa, Thomas Raetz, Carl Schweser, Gerry Suchanek, Anand Vijn
Assistant professors: Utpal Bhattacharya, James Cotter, Tim Laughter
Assistant professor emeritus: Ernest V. Zuber
Undergraduate degree: B.B.A. in Finance
Graduate degrees: M.B.A.; Ph.D. in Business Administration

Undergraduate Program
The undergraduate finance program provides a balance of theory, applications, and financial information technology to facilitate the transition from classroom to workplace.
Through fundamental finance principles and state-of-the-art financial markets information technologies, students develop analytical abilities to interpret financial markets data, implement the latest trading and investment strategies, and make effective managerial decisions in national as well as international settings.
Careers for students majoring in finance include corporate treasury operations, cash management, mergers and acquisitions, investment banking, sales and security trading, risk management, commercial banking and financial services, credit analysis, mortgage lending, financial planning, consulting, public administration, and venture capital. The program is committed to experiential learning; students receive an education consistent with the globalization of business and the explosion in financial markets information technology.

Requirements for the Bachelor of Business Administration with a finance major are as follows.

6F:100 Introductory Financial Management 3 s.h.
6F:102 General Insurance 3 s.h.
6F:110 Financial Information Technology 1 s.h.
Applications of commonly used software and data systems reviewed by student teams.
6F:111 Investments 3 s.h.
Investment in marketable securities in domestic and international markets; financial markets, orderentry trading, evaluation of qualitative and quantitative factors, formulation and implementation of investment strategies, efficient portfolio formation. Prerequisite: 6F:100 or consent of instructor.
6F:112 Security Analysis 3 s.h.
Value of financial securities using cases and financial information technology; macroeconomic and industry analysis, regulatory analysis, financial statement analysis, technical analysis, trading services, active portfolio management, performance evaluation. Prerequisite: 6F:111.
6F:113 Markets for Fixed Income Securities 3 s.h.
Theories of fixed income securities, term structure of interest rates; asset pricing models, valuation of fixed income securities and contingent claims, fixed income portfolio management, immunization strategies, yield curve analysis. Prerequisite: 6F:100 or consent of instructor. Corequisite: 6F:110.
6F:114 Commercial Banking 3 s.h.
Management of commercial banks and financial services firms; asset and liability management, credit policy, capital risk, liquidity planning, use of swaps and derivatives to hedge interest rate risk, global banking, investment strategies. Prerequisite: 6F:100 or consent of instructor. Corequisite: 6F:110.
6F:116 Futures and Options 2-3 s.h.
Use of options, futures, and other derivative securities in financial management; understanding types of derivative securities, markets, trading technology; applications of risk management and speculation; pricing relations with underlying securities. Prerequisite: 6F:111 or consent of instructor.
6F:117 Intermediate Financial Management 3 s.h.
Advanced managerial decision making, corporate financial policy, dividend policy, agency theory, corporate restructuring, capital structure strategies, mergers and acquisitions, option pricing fundamentals, convertible debt, & deb, warrants. Prerequisite: 6F:100 or consent of instructor. Corequisite: 6F:116.
6F:126 Real Estate Process 3 s.h.
Fundamentals of real estate finance and investments; economic base analysis, market analysis, mortgage markets, underwriting, alternate mortgages, mortgage-backed securities, real estate securitization, land development, valuation principles, investment analysis, tax consideration, portfolio management. Prerequisite: 6F:100 or consent of instructor. Corequisite: 6F:110.
6F:128 Managing the New or Small Business 3 s.h.
The role of small business in economy, problems confronting small business entrepreneur.
6F:29 Advanced Entrepreneurship 3 s.h.
6F:30 International Finance 3 s.h.
International monetary systems, exchange rate determination, use of currency derivative in hedging and risk management, currency swaps, foreign exchange, international capital budgeting, international portfolio investment, Third World debt, privatization, joint ventures. Prerequisite: 6F:100 or consent of instructor. Corequisite: 6F:110.

Graduate Program
See “Interdepartmental Graduate Programs” in the College of Business Administration introductory section of the Catalog.

Courses
Primarily for Upper-Division Undergraduates
6F:000 Cooperative Education Internship 0 s.h.
6F:100 Introductory Financial Management 3 s.h.
6F:100 or consent of instructor. Corequisite: 6F:110.
6F:102 General Insurance 3 s.h.
6F:110 Financial Information Technology 1 s.h.
6F:111 Investments 3 s.h.
6F:112 Security Analysis 3 s.h.
6F:113 Markets for Fixed Income Securities 3 s.h.
6F:114 Commercial Banking 3 s.h.
6F:116 Futures and Options 2-3 s.h.
6F:117 Intermediate Financial Management 3 s.h.
6F:126 Real Estate Process 3 s.h.
6F:128 Managing the New or Small Business 3 s.h.
6F:29 Advanced Entrepreneurship 3 s.h.
6F:30 International Finance 3 s.h.

Primarily for Graduates
6F:201 Directed Readings in Finance Consent of instructor required.
6F:202 M.A. Research Report 1 s.h.
Open only to nonthesis M.A. candidates. Consent of instructor required.
6F:205 Contemporary Topics in Finance arr.
6F:210 Financial Information Technology 0 s.h.
Applications of commonly used software and data systems reviewed by student teams.
6F:211 Commerce on the Web 3 s.h.
Use of technology and the World Wide Web as business tools; experience working with firms to develop a presence on the web; HTML authoring, security, marketing on the web, business on the Internet. Consent of instructor required.
6F:212 Investment Management 3 s.h.
Hands on approach to investing in marketable securities in domestic and global markets; market efficiency, risk-return relationships, asset pricing models, security valuation, options and futures valuation, portfolio strategies and management. Prerequisite: 6N:225 or consent of instructor.
6F:213 Futures and Options 3 s.h.
Use of options, futures, and other derivative securities in financial management: types of derivative securities, markets, trading technology; applications of risk management and speculation; pricing relations with underlying securities. Prerequisite: 6N:225 or consent of instructor. Corequisite: 6F:210.
6F:214 Real Estate Finance and Investments 3 s.h.
Structuring real estate finance and investment; mortgage markets and pricing, mortgage-backed securities, development process, real estate valuation, tax effects, securitized real estate, real estate cycles, application of derivative instruments, strategic asset allocation. Prerequisite: 6F:126 or 6N:225 or consent of instructor. Corequisite: 6F:210.
6F:215 Corporate Finance 3 s.h.
Structured problems and cases in corporate financial policy decisions, financial decision models, current and fixed asset administration, cost of capital, capital budgeting, dividends, cash flow projections, cash management, mergers and acquisitions. Prerequisite: 6N:225 or consent of instructor. Corequisite: 6F:210.
6F:216 Fixed Income Securities 3 s.h.
Theories of fixed income securities, term structure of interest rates; asset pricing models, valuation of fixed income securities and contingent claims, fixed income portfolio management. Prerequisite: 6N:225 or consent of instructor.
6F:217 Bonds and Interest Rate Derivatives 3 s.h.
Advanced tools for managing interest rate risk and models of interest rate dynamics applied to fixed income securities, fixed-income derivatives; projects in fixed income management. Prerequisite: 6F:212 or consent of instructor.
6F:218 Advanced Corporate Finance 3 s.h.
6F:219 Applied Management 3 s.h.
6F:220 Management of Financial Institutions 3 s.h.
6F:221 Applied Securities Management I 3 s.h.
Hands on approach to portfolio management; setting goals, trading securities, developing programs to evaluate fund performance. Prerequisite: 6F:221, Consent of instructor required.
6F:222 Applied Securities Management II 3 s.h.
Continuation of 6F:221, which is prerequisite. Consent of instructor required.
Valuation (DCF and CAPM); valuation under certainty, foreign exchange, Eurocurrency markets, currency derivatives, risk hedging, international bond and equity markets, privatization, joint ventures. Prerequisite: 6N:225 or consent of instructor. Corequisite: 6F:210.

6F:225 Finance Theory I 3 s.h.
Options valuation; financial leverage, market efficiency and information economics, term structure models, capital market equilibrium models, corporate finance issues; emphasis on theory. Open only to doctoral students.

6F:226 Seminar in Corporate Finance 3 s.h.
Valuation (DCF and CAPM); valuation under 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 students.

6F: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 market structure theory. Open only to doctoral students.

6F: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.

6F:229 Seminar in Finance 0 s.h.
Open only to doctoral students.

6F:270 Research in Finance Consent of instructor required. 4 s.h.

6F:290 Thesis in Business Consent of instructor required. 4 s.h.

Management and Organizations
Chair: Michael K. Mount
Professors: Jay Christiansen-Szalanski, John T. Delaney, Nancy R. Hausman, Lola L. Lopes (Pomerantz Professor), Michael K. Mount, George Neumann, Gerald L. Rose, Sara L. Rynes (Murray Professor), Frank L. Schmidt (Sheets Professor), Peter P. Schoeder, Jode P. West
Professors emeriti: Norman F. Kallaus, Charles R. Klasson, Anthony V. Sincirlioglu, Duane E. Thompson
Associate professors: Murray R. Barrick, Robert D. Bretz, Timothy A. Judge, Poppy L. McLeod
Assistant professor: Terry L. Boles
Undergraduate degree: B.B.A. in Industrial Relations and Human Resources
Graduate degrees: M.B.A.; M.A., Ph.D. in Business Administration

Students majoring in industrial relations and human resources take courses of study that deal with human resources, labor relations, employment discrimination, organizational behavior, organizational design, and strategic management. The program is designed to give students a thorough background in these areas as well as an understanding of their application to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are blended to include both theoretical and pragmatic aspects of the field.

The industrial relations and human resources major prepares students for a variety of line, staff, and professional positions in business, government, non-profit institutions, and education. Work areas for which graduates are qualified include human resource management, compensation and reward system administration, staff benefits, selection and recruitment, performance appraisal,
6J:255 Managerial Decision Making 3 s.h.
Techniques for identifying, evaluating, improving, and making decisions; decision making policies; social judgment theory; multivariate utility theory; signal detection theory.

6J:256 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:257 Legal Issues in Human Resource Management 3 s.h.
Laws, regulations governing human resource management processes; employee discipline, termination, layoffs, privacy, various involvement programs; occupational safety and health, workers’ compensation, discrimination. Prerequisite: 6N:227.

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 labor grievance, arbitration. Same as 91:309.

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. Prerequisite: 6N:227.

6J:262 Interpersonal Processes 3 s.h.
Imagining leadership and influence in groups and organizations; understanding social influence and group processes, including communication, conflict, and intergroup relations. Prerequisite: 6N:212.

6J:263 Organizational Design, Change, and Transformation 3 s.h.
Organization theory applied to design, management of small and large companies; impact of changing technological, environmental factors on organizational operations, effectiveness; case studies.

6J:264 Human Resource Management Ph.D. 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 Organizational Behavior Ph.D. 3 s.h.
Individual behavior, group behavior in organizations; focus on social issues, research applied to organizational problems, such as selection, training, performance evaluation, compensation, employment rights.

6J:267 Organizational Theory Ph.D. 3 s.h.
Organizational theory; design, impact of changing environmental, technological factors on organizational structure, effectiveness; power, conflict, interorganizational network, organizational life cycles, population ecology.

6J:268 Seminar in Management 3 s.h.
Topics vary.

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 measurement artifacts.

6J:270 Research Methods in Management and Organizations 3 s.h.
Methods commonly used in behavioral research; critical evaluation of research; research process from idea generation to publication; practice in generating hypotheses, drafting surveys, analyzing data, reviewing manuscripts.

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. Prerequisite: 6N:227.

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 Behavioral Decision Making 3 s.h.
Behavioral research on judgment and decision making by individuals, groups, organizations; current research and controversies; formal models of choice and judgment processes, including prescriptive methods. May be repeated.


6J:295 Mentored Research 3 s.h.
Management research conducted by doctoral students under faculty supervision; culminates in second-year research paper.

6J:299 Field Studies in Management and Organizations 3 s.h.
Industrial relations or human resources topic in a functioning organization; independent study.

MANAGEMENT SCIENCES

Chair: Kenneth O. Kortaneck
Associate professors: June Park, Alberto Segre, Padmini Srivinasan
Associate professor emerita: Eleanor M. Birch
Assistant professors: Renato de Matta, Rodney Traub, Dan Zhu

Undergraduate Program

Students majoring in management information systems participate in a variety of educational experiences that develop knowledge of managerial decision-making systems. Skills in applying this knowledge are acquired by developing quantitative models, using computing 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.
22C: 16 Introduction to Programming 4 s.h.

One additional computer science programming course (22C:9 or 22C:17 recommended, 22C:1 and 22C:5 not eligible)

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 chosen from the following:

Economics and Behavioral Science

One or two of these:
6N:213 Managerial Economics 3 s.h.
or
6N:228 The International Economic Environment of the Firm 3 s.h.
6N:227 Human Resource Management 2 s.h.

Research Methodology

6N:216 Data and Decisions 3 s.h.

Management Information Systems

All of these:
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 two of these:
6K:278 Forecasting 3 s.h.
6K:283 Research Seminar in Management Information Systems 3 s.h.
6K:291 Operations Planning and Control 3 s.h.
6K:294 Artificial Intelligence for Management 3 s.h.
6N:229 Operations Management 3 s.h.

Computer Science

Both of these:
22C: 144 Database Management Systems 3 s.h.
22C: 180 Fundamentals of Software Engineering 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 introductory section of the Catalog.

Courses

Primarily for Undergraduates

6K:000 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; facility location; planning, management, materials management, operations planning and scheduling, emerging technologies in production and service management. Junior standing required. Pre or corequisite: 6K:70.

Consent of instructor required.

6K:176 Managerial Decision Models 3 s.h.
Mathematical programming, including linear, nonlinear, dynamic programming, with applications in economics, management; classical optimization techniques, transportation, network flow problems. Prerequisite: 6K:70.

6K:180 Management Information Systems 3 s.h.
Information technologies critical to business firm’s strategic, managerial, and operational-level activities, and information systems infrastructure; different types of business application software, including transaction processing, database management, expert systems; database design. Consent of instructor. Prerequisite: 6K:70.

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 reformulation system. Prerequisite: 6K:181.

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. 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: 6K:1, 6K: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 (MRP) and just-in-time (JIT) systems. Prerequisite: 6K:100.

6K:186 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.

6K:202 M.A. Research Report 1 s.h.
Open only to nonthesis M.A. candidates. Consent of instructor required.

6K:271 Applied Multivariate Data Analysis 3 s.h.
Conceptual framework for multivariate statistical analysis techniques applicable to business administration, case studies in accounting, marketing, finance, management. Prerequisite: 6N:216 or equivalent.

6K:274 Service Operations Management 3 s.h.
Managing services; design of services and service delivery process; service quality; global management of service operations. Prerequisite: 6N:229 or consent of instructor.

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:216 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. Prerequisite: 6K:280.

6K:281 Management Systems Design 3 s.h.
Structured approach to analysis, design of computer based business database systems; structured analysis tools such as data flow diagrams, data dictionary, decision tables, Structured English; structured design tools such as structure charts, pseudocode, logical database design. Prerequisite: 6K:280 or consent of instructor.

6K:282 Applied Database Management Systems 3 s.h.
Hierarchical, network, relations data models; approaches to logical and physical database design, database administration; concurrency control, maintenance issues; design, implementation of a database using relational DBMS. Prerequisite: 6K:280.

6K:284 Operations Strategy 3 s.h.
A firm’s strategic use of operations for competitive advantage through decisions on facility size, degree of vertical integration, process technology selection, proper approach to quality, productivity, and technology.

6K:285 Research Seminar in Management Information Systems 3 s.h.
Structured designs, design, generation languages, communication, economics of computers, computer security issues, expert systems, decision support systems. Consent of instructor required.

6K:286 Convex Analysis 3 s.h.
Convex sets, polar cones, functions; directions of recession and subgradients, separation of convex sets, Fenchel conjugates; Lagrangian principles and duality, set valued mappings and semi-containment, extreme, minimax theory, linear inequalities. Prerequisites: introductory course in linear algebra and one calculus course.

6K:287 Topics in Optimization 3 s.h.
Recent progress in linear, nonlinear, and combinatorial optimization; topics vary; topics such as approximation, randomized and interior point algorithms. Consent of instructor required.

6K:288 Applied Stochastic Processes 3 s.h.

6K:289 Research Seminar in Quantitative Methods 3 s.h.
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.

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. Prerequisite: 6N:216.

6K:292 Management of Logistics Systems 3 s.h.
Design, operation, and management of a logistics system; design of production/service and warehousing systems, including distribution channel selection, inventory, transportation, customer partnering. 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.
Application of expert systems, automated AI programming, practical experience with an AI programming language, expert system shell. Consent of instructor required.

6K:295 Logistics Management and Analysis 3 s.h.
Modeling of and solution methodology for problems in design, operation of logistics systems; location, routing, distribution, multichannel inventory. Consent of instructor required.

6K:296 Business Telecommunications Management 3 s.h.
Transmission media and techniques, switching methods, network management, tariffs, examples of existing telecommunication networks. Prerequisite: 6K:280.

6K:298 Managing Product Development 3 s.h.
Key concepts, tools in using the product development process to gain sustainable competitive advantage. Consent of instructor required.

MARKETING

Chair: Gary J. Gaeth
Professors: Carol C. Fethke, Gary J. Gaeth, Peter C. Riesz, Randall L. Schultz, Doyle L. Weiss
(Murray Professor)

Associate professors: Catherine A. Cole, Thomas S. Gruna

Visiting professor: E. John Kotman

Undergraduate degree B.B.A. in Marketing
Graduate degrees M.B.A.; Ph.D. in Business Administration

Undergraduate Program

The Department of Marketing offers courses that help undergraduate students understand the business, social, and economic roles of marketing and prepare them for marketing careers.

Several decades ago, the study of marketing dealt almost exclusively with business activities involved in the flow of goods from production to consumption. Today the study of marketing includes principles that are more widely applicable; they are as relevant to the success of arts, sports, and social programs as they are to firms selling goods and services. A major in marketing includes study in the behavioral sciences, communications, statistical analysis, and computer methods as well as marketing decision making.

Students who graduate with a major in marketing may find opportunities for employment as market analysts, merchandise managers, buyers, purchasing agents, advertising managers, brand managers, or sales representatives in a variety of profit and nonprofit organizations.

The requirements for the Bachelor of Business Administration with a major in marketing are as follows:

6M:134 Marketing Research 3 s.h.
6M:135 Consumer Behavior 3 s.h.
6M:147 Marketing Management (should be taken in the senior year) 3 s.h.

At least two, but no more than three of these:
6M:137 Advertising Theory 3 s.h.
6M:139 Sales Management 3 s.h.
6M:151 International Marketing 3 s.h.
6M:190 Topics in Marketing 3 s.h.

Graduate Programs

See “Interdepartmental Graduate Programs” in the College of Business Administration introductory section of the Catalog.
Courses

Primarily for Upper-Division Undergraduates

6M:000 Cooperative Education Internship 0 s.h.
Prerequisites: a 3.00 grade point average in 6M:100 and 6M:134.

6M:100 Introduction to Marketing 3 s.h.
Philosophy and activities of marketing; marketing environment of an organization; strategies with respect to marketing decisions, buyer behavior; spreadsheet analysis of marketing problems. Junior or higher standing required. Prerequisites: 6A:1 and 6E:1.

For Undergraduates and Graduates

Consent of instructor required.

6M:134 Marketing Research 3 s.h.
Marketing research methods; role of marketing research information as a tool in management decision making. Prerequisites: 6K:71 and 6M:100.

6M:135 Consumer Behavior 3 s.h.
Behavioral and social aspects of marketing; research methods and findings from behavioral sciences, their relation to production, consumption, and marketing of products, services. Prerequisite: 6M:100.

6M:137 Advertising Theory 3 s.h.
Advertising as a promotional force; emphasis on theory, planning, resulting strategic and tactical decisions made by advertising executives. Prerequisite: 6M:100.

6M:139 Sales Management 3 s.h.
Personal selling, management of sales force; emphasis on recruitment, selection, training of sales representatives; problems in allocation of sales effort, supervision, control. Prerequisite: 6M:100.

6M:147 Marketing Management 3 s.h.
Marketing problems of organizations; emphasis on marketing manager’s role in developing, presenting goal oriented marketing strategies; application of marketing concepts to real business situations. Prerequisite: 6M:134 and one additional marketing course.

6M:151 International Marketing 3 s.h.
Strategic considerations, political, legal, and economic conditions affect market entry strategies and marketing mix decisions; development of marketing plan for non-U.S. environments. Prerequisite: 6M:100.

6M:190 Topics in Marketing 3 s.h.
Topics not regularly offered in other courses. Consent of instructor required. Prerequisite: 6M:100.

Primarily for Graduates

6M:201 Directed Readings in Marketing arr.
Consent of instructor required.

6M:203 Marketing Research Methods 3 s.h.
Managerial applications of marketing research techniques, including methods of design, interpretation of marketing research studies; assessing value of information, sampling, sources of bias, instrument construction, Interpretation of scanner data, applications of integrated research systems. Prerequisites: 6N:211 and 6N:216.

6M:231 Industrial Marketing 3 s.h.
Industrial buyer behavior, buyer-seller relationships, product policy and market segmentation, distribution and control systems; skill development in formulating marketing strategies for industrial products and services, in industrial marketing problem solving and decision making. Prerequisite: 6N:211.

6M:237 Field Studies in Marketing 3 sch.
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:216. Recommended: 6M:230.

6M:238 Contemporary Topics in Marketing 3 s.h.
Topics not regularly offered in other courses. Open only to graduate students. Prerequisite: 6N:211.

6M:239 Analysis for Marketing Decisions 3 s.h.
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.

6M:241 Management Models – Ph.D. 3 s.h.
Analytic models that support marketing decision making; emphasis on structure, use of models for decision situations; case studies. Consent of instructor required.

6M:242 Marketing Models – Ph.D. 3 s.h.
Theoretical, operational models in marketing, with emphasis on recent advances; in-depth criticism of models, participation in model development project. Consent of instructor required.

6M:243 Research in Consumer Behavior 3 s.h.
Key facets of consumer behavior—information processing, perception, memory, learning, attitude formation, attitude change, decision making, emotion; behavioral research methods. Consent of instructor required.

6M:244 Multivariate Applications – Ph.D. 3 s.h.
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 proficiency with linear algebra and inferential statistics. Consent of instructor required.

Individual research topics. Consent of instructor required.

6M:290 Thesis in Marketing arr.
Consent of instructor required.
# College of Dentistry

<table>
<thead>
<tr>
<th>Department</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endodontics</td>
<td>298</td>
</tr>
<tr>
<td>Family Dentistry</td>
<td>299</td>
</tr>
<tr>
<td>Hospital Family Dentistry</td>
<td>299</td>
</tr>
<tr>
<td>Operative Dentistry</td>
<td>300</td>
</tr>
<tr>
<td>Oral and Maxillofacial Surgery</td>
<td>300</td>
</tr>
<tr>
<td>Oral Pathology, Radiology, and Medicine</td>
<td>301</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>303</td>
</tr>
<tr>
<td>Pediatric Dentistry</td>
<td>304</td>
</tr>
<tr>
<td>Periodontics</td>
<td>304</td>
</tr>
<tr>
<td>Preventive and Community Dentistry</td>
<td>305</td>
</tr>
<tr>
<td>Prosthodontics</td>
<td>306</td>
</tr>
</tbody>
</table>

Dean: David C. Johnsen
Senior adviser to the dean: John C. Montgomery
Associate dean, research and graduate studies: Christopher Squier
Associate dean, faculty development and curricular planning: Nelson S. Logan
Associate dean, finance and facilities: M.J. Brennan
Assistant dean, clinic administration: Daniel L. Hall
Assistant dean, student affairs: Yvonne Chalkley
Director, oral science: Christopher Squier
Degrees: D. D. S., M. S., Ph.D.
The College of Dentistry is an integral part of The University of Iowa and its Health Sciences Center. Faculty members, predoctoral students, and specialty residents provide oral health care to patients at clinics in the Dental Science Building, the University Hospital School, and the dentistry clinics at University Hospitals and Clinics and the Veterans Affairs Medical Center. Faculty, staff, and students participate in interdisciplinary research and training activities involving the University’s four health science colleges as well as other University colleges and departments.

The primary mission of the College of Dentistry is to prepare general dentists to serve the oral health needs of the citizens of Iowa and the nation. The college’s second educational mission is to prepare students as dental specialists and scholars.

The college also serves as an intellectual and academic resource for the state, the profession, and the nation. As part of an outstanding research university, it participates in the advancement and dissemination of knowledge. Its service activities include providing oral health care to thousands of Iowans and residents of surrounding states and serving as a referral center for complex oral health problems.

Founded in 1882, the college began as a single University department. In 1900 the University underwent general reorganization and the Dental Department became the College of Dentistry. In the 19th century dentistry was taught at several locations in Iowa, but today the college is Iowa’s only provider of dental education and ranks as a leader in dental education nationwide.

The college and its educational programs are accredited by the Commission on Dental Accreditation of the American Dental Association, an independent tripartite commission authorized and recognized by the Commission on Post-Secondary Education.

Programs offered by the college cover the full spectrum of dentistry and are closely integrated. They include the Doctor of Dental Surgery program (D.D.S.), which prepares general dentists; eight advanced education programs, each of which leads to certification in a dental specialty; several advanced education programs in other areas of dentistry, including the Oral Science program, which offers M.S. and Ph.D. degrees; post-D.D.S. residency programs in general and hospital-based dentistry; and a wide variety of continuing education programs for the dental and allied professions.

Doctor of Dental Surgery

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, students are 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 Care Clinic. They may participate in the Colorado Migrant Worker Program or the Foreign Dental School Exchange Program. The extramural programs provide 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 deans 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, Colorado, Illinois, Kansas, Minnesota, Missouri, Nebraska, North and 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 members of 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 their dental training. The SIMS usage fee for the D.D.S. is payable in installments over the four-year program.

A fee for expendable laboratory supplies is charged each of the first two years. A $100 breakage fee also must be deposited; the deposit is refundable upon graduation or termination of enrollment.

Financial Aid

Financial assistance for dental students is based on need. Dental students who demonstrate need are eligible for Health Professions Loans, Perkins Loans, and Stafford/Ford Loans. Students applying for Health Professions Loans must submit the Free Application for Federal Student Aid (FAFSA), which includes an evaluation of parents’ income and assets.
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 $3,000 to $10,000 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.

Minories

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.

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 and the College of Dentistry Office for Student Affairs.

Applications are accepted beginning June 1 of the year before the year of entry. Completed applications must be on file at AADSAS by November 1. 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 educational 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).

Predental Studies

The basic academic requirement for admission to the College of Dentistry is the completion of at least 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.

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.

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, organicism 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.

Grade-Point Average Requirement

Applicants should have a cumulative grade-point average of at least 2.50 on a 4.00 scale. The admissions committee gives special consideration to the quality of applicants’ course work in the predental sciences in addition to the cumulative grade-point average.

Interviews

Personal interviews are required of applicants for admission to the College of Dentistry. Applicants are contacted to arrange an interview, usually after the AADSAS application is received by the admissions office.

Required Dental Admission Test

All applicants must complete the Dental Admission Test (DAT) sponsored by the Council on Dental Education of the American Dental Association. 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 Office for Student Affairs; and 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

Applicants accepted before February 1 are required to submit a $500 deposit within 30 days after notification of admittance. Applicants admitted after February 1 must submit the deposit within two weeks after notification of admittance. This deposit is not refundable but is credited toward the first fee payment. Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

Additional Admission Considerations

Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study and practice of dentistry. The committee considers applicants’ academic averages, science averages, 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 semester-hour requirement 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.

60:101 Human Gross Anatomy for Dental Students 6 s.h.
60:112 General Histology for Dental Students 4 s.h.
60:114 Oral Histology and Embryology 1 s.h.
61:112 Health Sciences Microbiology 4 s.h.
69:133 Introduction to Human Pathology arr.
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 hours of graduate work and a final examination. It is anticipated that candidates will complete the program in two years of full-time residence. M.S. candidates who also are involved in an advanced clinical program of two years’ duration should complete the M.S. program by the end of a third year of study.

ADMISSION

Applicants should have 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 interests, and stating how completion of the Ph.D. program fits into their career goals. A personal interview may be requested.

Courses

Oral science courses are listed under “Courses,” later in this section of the Catalog.

Other Graduate Programs

Programs of study leading to the Master of Science also are offered by the Departments of Operative Dentistry; Oral Pathology, Radiology, and Medicine; Orthodontics; Periodontics; and Preventive and Community Dentistry. Admission to these graduate programs requires satisfaction of all requirements for admission to the Graduate College, Doctor of Dental Surgery degree or its equivalent, and departmental approval.

Postgraduate Study

Departments also offer postgraduate programs 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.

Faculty

Iowa’s dental faculty is predominantly full-time. In addition, 70 part-time adjunct faculty (about 12 full-time equivalents) assist with clinical teaching in the D.D.S. and advanced education programs. Approximately 82 percent of the college’s faculty members hold D.D.S. or D.M.D. degrees and 18 percent represent other disciplines. The vast majority of faculty dentists have advanced education past the D. D. S., generally with Master’s degrees in specialty areas; about one-fifth hold a Ph.D. degree.

The College of Dentistry is committed to the principle that diversity is essential to a strong educational environment — one that prepares new generations of dentists to provide high-quality care to patients from many backgrounds. The college’s full-time faculty reflects that commitment.

Facilities

The College of Dentistry is located in the Dental Science Building on the Iowa Health Sciences Center campus. The south wing of the building is devoted to clinical teaching, with departmental clinics, laboratories, clinical research space, and a cafeteria. The north wing houses teaching laboratories, the college’s administrative offices, educational media service, the academic Department of Preventive and Community Dentistry, and on the fourth floor, the research laboratories and faculty offices of the Dews Institute for Dental Research.

Education and Patient Care

Patient care is integral to dental education. Students and faculty members deliver oral health care in clinics on the Health Sciences Center campus and at several off-campus sites, including nursing homes. More than 25,000 people receive oral health care yearly in the college’s clinics. Patients from throughout Iowa as well as from western Illinois and northern Missouri account for most of the 110,000 clinic visits each year.

Interdisciplinary Centers

Dews Institute for Dental Research

Established in 1976, the Dews Institute for Dental Research occupies the fourth floor of the Dental Science Building’s north wing. Laboratories are equipped to support a wide variety of research projects reflecting the complex nature of modern health care needs. Research in the institute focuses on three program areas: biomaterials and biomaterialization, cariology/microbiology, and oral soft tissues. Although research is concentrated in these program areas, one of the unit’s strengths has been the consistent level of interaction and collaboration among individuals and programs.

Center for Clinical Studies

For more than a decade, this center has offered the oral health care industry a multidisciplinary setting for product testing and development directed by experienced faculty scientists in laboratory or clinical settings. Center researchers have broad experience in designing tests of therapeutic claims and product safety that meet the criteria of the ADA’s Council on Dental Therapeutics and Council on Dental Materials and Equipment, and the Food and Drug Administration Clinical Trials.

Center for Oral and Maxillofacial Implants

Through integrated research, education, and clinical programs, this center facilitates development and use of implants in dentistry as a therapeutic modality. The center integrates basic and clinical research with technology transfer to the clinical setting, enhancing predoctoral, postgraduate, and continuing education and expanding treatment options available to patients served by the College. The center also provides vital coordination of the various dental specialties participating in this treatment modality.

71:111 Pharmacology for Health Sciences: Dental 5 s.h.
72:152 Mammalian Physiology 4 s.h.
99:161 Biochemistry for Dental Students 4 s.h.
courses

Oral Science

151:200 Seminars in Dental Research 1 s.h.
151:210 Dental Sciences Research Methodology 2 s.h.
Practical, experimental procedures in dental research, literature and design; writing of research protocols.
151:220 Path-physiology of Skin and Oral Mucosa 2 s.h.
Biological of skin, oral mucosa; changes in behavior of the tissues in a variety of physiological, pathological conditions. Offered fall semesters of odd years. Prerequisite: 151:210.
151:250 Path-physiology of Salivary Glands and Saliva 2 s.h.
Secretion, 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 Path-physiology of the Pulp-Dentin Complex 2 s.h.
Biology of tissue; emphasis on pathological changes. Offered spring semesters of even years. Prerequisite: 151:210.
151:250 Current Concepts of Cariology 2 s.h.
Etiology of dental caries; pathogenesis, development of preventive measures. Offered spring semesters of odd years. Prerequisite: 151:210.
151:260 Bone and Tooth Support Structure and Implants 2 s.h.
Biology of bone and periodontal structures; biologic basis for therapeutic use of dental implants.
151:270 Infectious Diseases 2 s.h.
Biological knowledge of infectious diseases relevant to clinical dentistry, including hepatitis B, AIDS, herpes. Offered fall semesters. Prerequisite: 151:210.
151:275 Oral Microbiology and Immunology 2 s.h.
Principles of microbiology and immunology, including dental aspects of host parasite relations, immunological phenomena, and biological and clinical manifestations induced by major oral pathogens. Prerequisites: microbiology, biochemistry, and biology. Recommended: immunology.
151:280 Advanced Dental Therapeutics 1 s.h.
Antimicrobial, analgesic, related therapies; emphasis on drug/drug interactions, treatment plan modification, care analysis of medically compromised patient. Offered spring semesters.
151:290 Strategies for Teaching Problem-Solving 2 s.h.
Describing large and small group instruction for critical thinking skills; evaluating student performance.
151:600 Research in Oral Science 2 s.h.
Thesis research. Open only to candidates for M.S. or Ph.D. in oral science.

Nondepartmental

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.
112:145 Introduction to Geriatric Dentistry 2 s.h.
Biological, psychological, social aspects of aging; normal aging, disease processes, pathological changes that affect oral health treatment of dental diseases and patient management. Same as 151:145.
112:150 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.

ENDODONTICS

Head: Richard E. Walton
Professor: Richard E. Walton
Professor emeritus: Arne M. Bjorndal
Associate professors: David R. Drake, William T. Johnson, Eric M. Rivera, Lisa B. Wilcox
Graduate degrees: 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 periapex, 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.

Graduate Programs

The advanced programs offered by the Department of Endodontics are designed to prepare qualified dentists for the practice of endodontics and/or a career in dental education and research.

The department offers three types of post-D.D.S. programs.

The Master of Science program requires a minimum of 30 semester hours (three years) of graduate work, including an original research project and thesis. Students follow an individual plan of study.

The Ph.D. program requires a minimum of 72 semester hours of credit in addition to original research that culminates in successful defense of a dissertation. It is anticipated that candidates will complete the program in five years of full-time study.

The certificate program in endodontics involves course work for up to 60 semester hours and requires no formal thesis. Candidates are expected to write a scientific paper that is based on original research and is of publishable quality. An individual plan of study is prepared for each student.

A certificate in endodontics also is awarded with both the Ph.D. and M.S. degrees.

These programs satisfy the training requirements of eligibility of the American Board of Endodontics.

Through the advanced programs, dentists develop their skills and acquire a broad knowledge of the endodontics specialty for teaching and practice; gain knowledge and experience in the educational process in order 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 admission requirements of The University of Iowa Graduate College.

The advanced programs in endodontics begin July 1. Applications should be made by the preceding September 15. Students who have met the requirements for admission to the Graduate College also must be accepted into the certificate program by the Department of Endodontics. A personal interview with the applicant may be required.

Students enrolled in the program must maintain a 3.00 grade-point average in order to receive a certificate or degree. Students who fall below this level are allowed one semester to correct the deficiency. The circumstances creating the deficiency receive careful consideration.

Students enrolled in the advanced programs may not involve themselves in private practice outside the college. A student who does so will be asked to obligate himself or herself exclusively either to the program or the practice.

Persons applying to the advanced programs in endodontics must be able to support themselves financially for the time required to complete the program.

Courses

For Predoctoral Students

112:153 Program Abroad arr.
Opportunities for foreign dental studies.
112:180 Fourth-Year Lectures and Clinics arr.
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.

For Graduate Students

112:165 Biostatistics 2 s.h.
Basic concepts of statistics; computation and analysis of data; examination of significance and interpretation of results.
112:175 Clinical Endodontics 1 s.h.
Basic principles and concepts of clinical endodontics.
112:177 Advanced Clinical Practice 1 s.h.
Clinical experience in diagnosis, treatment of routine pulpal, periapical pathology, emergency diagnosis, treatment of patients.
83:140 Endodontics Preclinical Didactic 1 s.h.
Basic principles, concepts, technical procedures for treatment of pulpal problems.
83:141 Endodontics Preclinical Laboratory 1 s.h.
Basic technical procedures for treatment of pulpal problems.
83:160 Clinical Endodontics Practice arr.
Clinical experience in diagnosis, treatment of routine pulpal, periapical pathology, emergency diagnosis, treatment of patients.
83:165 Clinical Endodontics Seminar 1 s.h.
Tooth pain, anesthesia, pulpal and periapical reactions, endodontics radiologic interpretation, trauma diagnosis and treatment, surgical endodontics, endodontics implants, bleaching, retreatment, apexification/apexitis.

For Graduate Students

83:200 Update in Endodontics 1 s.h.
Recent advances in diagnosis, treatment planning, clinical techniques.

83:225 Endodontics Literature Review I 2 s.h.
Current research.

83:226 Endodontics Literature Review II 2-3 s.h.
Continuation of 83:225.

83:227 Endodontics Literature Review III 2 s.h.
Continuation of 83:226.

83:228 Endodontics Literature Review IV 2 s.h.
Continuation of 83:227.

83:230 Research in Endodontics arr.
Topic selection; protocol preparation and beginning of investigation; completed research investigation, data gathering; thesis, defense.

83:231 Thesis Preparation in Endodontics 3 s.h.
Clinical treatment, from simple to advanced; implants, replants, transplants, apical surgeries, root amputations, hemisections.

83:250 Seminar in Endodontics I 1-2 s.h.
Pulp biology; histochemistry 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.
Clinical procedures, how they relate to difficult cases; evaluation of case success, failure in relation to treatment procedures; surgical endodontics, concepts, techniques.

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 arr.

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 make practice location selections as well as manage the business aspects of a dental office.

Postgraduate Program

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 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

114:184 Advanced DAU 1 s.h.
Delivery of comprehensive dental treatment in clinical setting, with chairside dental assistant; small-group seminars, individual clinical coaching, self-instruction via a manual and supplemental media; instrument transfer techniques, operator positioning, gaining access and visibility, work simplification and motion economy, management skills, interpersonal skills, selection of dental equipment for four-handed dentistry.

114:185 Practice Management Lecture 1 s.h.
Developing a dental practice; economics, managerial principles, personnel management, leadership styles, marketing and communication, computerization, decision making, time utilization; insurance needs, banking, accounting, legal considerations, risk management, and entering into an associate contract.

114:187 Family Dentistry Clinic I arr.
Management of treatment of patient’s total dental needs in Family Dentistry Clinic; integration of knowledge, experience for comprehensive dental care management.

114:188 Family Dentistry Clinic II arr.
Clinical experience in diagnosis, treatment planning and delivery; integrated, comprehensive dental care management.

114:194 Topics in Family Dentistry 3 s.h.
Current techniques, findings; applications for general practitioners; graduate specialty programs.

114:195 Treatment Planning and Sequencing 2 s.h.
Documentation of diagnostic procedures used in developing a treatment plan and sequence for selected clinical patients; student presentations.

For Graduate Students

114:202 Advanced Clinical Dentistry I 1 s.h.
Participation in treatment planning seminars; presentation of treatment for patients with complex needs.

114:203 Advanced Clinical Dentistry II 1 s.h.
Continuation of 114:202.

114:204 Advanced Clinical Dentistry III 1 s.h.
Continuation of 114:203.

114:205 Advanced Clinical Dentistry IV 1 s.h.
Continuation of 114:204.

114:206 Thesis Preparation arr.
Research, completion of protocol, research project, data gathering, thesis and defense, comprehensive examination.

114:210 Advanced Diagnosis and Treatment Planning I 1 s.h.
Specialty and technical seminars; development of case reports.

114:212 Advanced Diagnosis and Treatment Planning II 1 s.h.
Continuation of 114:210.

HOSPITAL FAMILY DENTISTRY

Head: Daniel Lew
Division directors: William E. LaVelle (Family Dentistry), Daniel Lew (Oral and Maxillofacial Surgery), Stephen J. Goepfert (Pediatric Dentistry)
Assistant professors: Michael R. Arcuri, Michael J. Kanelis, Terry J. Lindquist, Linda Ricks-Williamson, Daniel S. Sarasin, Robert L. Schneider, Adriana Segura, William J. Syran, James J. Wheeler

The College of Dentistry operates a hospital dentistry clinical service at The University of Iowa Hospitals and Clinics. The service includes divisions of oral and maxillofacial surgery, family dentistry, and pediatric dentistry and interacts with the college’s specialties of orthodontics, periodontics, endodontics, diagnosis, oral pathology, and prosthodontics. A one-year general practice residency is offered by the hospital family dentistry program.
Residency Program

The 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 application deadline is November 1 for admission the following July 1. Applicants are appointed after the results of the match have been received and the staff takes official action.

OPERATIVE DENTISTRY

Head: John W. Reinhardt
Professors: Daniel Boyer, Gerald Denehy, James Fuller, Satish Khara, John Reinhardt
Professor emeritus: Wallace Johnson
Associate professors: Yvonne Chalkley, Thomas Schulte
Adjunct associate professors: Douglas Dederich, Paul Martin
Assistant professors: Deborah Cobb, Marcos Vargas
Adjunct instructors: Richard Grunder, Scott Hansen, Walker Love, Robert Margeas, Joe Rauch, Tim Smith, Brad Wagone
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, graduate students have the opportunity to take courses that particularly interest them. Students earn a Master of Science degree and 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 must provide 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, design of cavity preparation; manipulation, 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 goat’s 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 biological principles for preparation of cavities, restoration with appropriate materials.

82:160 Operative Dentistry III Clinic 2 s.h.
Patient treatment; amalgam, composite resin, gold; emphasis on physiological, aesthetic importance of restorative treatment.

82:165 Operative Dentistry III Seminar 1 s.h.
Cleft 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 84-224.

82:225 Operative Dentistry Seminar I 1 s.h.
Basic concepts of cavity preparation, material placement.

82:226 Operative Dentistry Seminar II 1 s.h.
Direct resin systems, bonding technology; their use in dental restorative treatment.

82:227 Operative Dentistry Seminar III 1 s.h.
Use of indirect techniques in bonded restorative 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 Research IV 3 s.h.
Thesis completion, defense.

82:234 Selected Applications of Operative Dentistry Advanced Techniques

82:236 Biomaterials Research Methodology 1 s.h.
Research introduction to biomaterials. Same as 84-236.

Clinical Studies

82:240 Operative Dentistry Advanced Clinic I Materials, techniques; restoration procedures on a patient.

82:241 Operative Dentistry Advanced Clinic II Patient treatment in operative clinic; basic operative procedures.

82:242 Operative Dentistry Advanced Clinic III Patient treatment in operative clinic; direct bonded esthetic restorative procedures.

82:243 Operative Dentistry Advanced Clinic IV Patient treatment in operative clinic; advanced esthetic restorative procedures.

82:244 Operative Dentistry Advanced Clinic V Patient treatment in operative clinic; advanced esthetic restorative procedures.

82:245 Clinical Demonstrating 2 s.h.
Teaching undergraduate dental students in laboratory, clinic.

ORAL AND MAXILLOFACIAL SURGERY

Head: Daniel Lew
Director, graduate studies: Kirk L. Fridrich
Professors: John C. Keller, James McLeary, John C. Montgomery, Deborah L. Zeiler
Associate professors: Karen A. Baker, Kirk L. Fridrich, Sherwood Wolfson
Assistant professors: Daniel S. Sarasin, William J. Syrian
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 postdoctoral 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.

Predoctoral 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 anesthesia-analgesia, intravenous sedation, and nitrous oxide analgesia techniques are presented through didactic and clinical experiences.
Graduate Programs

Residency Program

The residency program in oral and maxillofacial surgery combines clinical and didactic training to prepare dentists for specialty practice. Every effort is made to adapt the program to the individual interests, abilities, and development of students; 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 anesthesiology through an assigned rotation in the Department of Anesthesiology. Previous advanced training in physical diagnosis, physiology, pharmacology, and pathology take on greater clinical significance, and increased responsibility in the operating room as first assistant and surgeon further develops surgical judgment and skills.

Development and implementation of a research project under staff supervision enhance the value of the residency training.

Senior residents may be given responsibility for major oral and maxillofacial surgical cases during rotations at 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. may be 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 the following July 1.

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 Sciences 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 Predoctoral Students

87:104 Anesthesia Analgesia 1 s.h.
87:175 Oral and Maxillofacial Surgery Principles, techniques of local anesthesia; theory, application, instrumentation of nitrous oxide sedation; emphasis on cardiovascular, respiratory physiology; evaluation of patients, practical techniques for nitrous oxide sedation.
87:155 Advanced Oral and Maxillofacial Surgery 1 s.h.
87:160 Clinical Oral and Maxillofacial Surgery 1 s.h.
87:130 Basic Oral and Maxillofacial Surgery 1 s.h.
87:145 Anesthesia and Pain Control II 1 s.h.
87:230 Oral and Maxillofacial Surgery Research I 2 s.h.
87:231 Oral and Maxillofacial Surgery Research II 3 s.h.
87:232 Oral and Maxillofacial Surgery Research III 3 s.h.
87:233 Oral and Maxillofacial Surgery Thesis 3 s.h.
87:234 Oral and Maxillofacial Surgery Thesis 1 s.h.

For Graduate Students

87:201 Hospital Procedures 1 s.h.
87:202 Basic Science Review 4 s.h.
87:207 Surgical Anatomy 1 s.h.
87:208 Pain and Anxiety Control 1-3 s.h.
87:209 Principles of Anesthesia 2 s.h.
87:210 Anesthesia Analgesia 1 s.h.
87:212 Surgical Case Reports 1 s.h.
87:214 Roentgen Interpretation Theory, technique.
87:215 Physical Diagnosis 2 s.h.
87:218 Oral Pathology Conference Current clinical specimens.
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.
87:231 Oral and Maxillofacial Surgery Research II 3 s.h.
87:232 Oral and Maxillofacial Surgery Research III 3 s.h.
87:233 Oral and Maxillofacial Surgery Thesis 3 s.h.
87:240 Oral and Maxillofacial Surgery Seminar I 1 s.h.
87:241 Clinical Oral and Maxillofacial Surgery Seminar II 1 s.h.

ORAL PATHOLOGY, RADIOLOGY, AND MEDICINE

Head: Gilbert E. Lilly
Assistant professors: Michael W. Finkelsstein, Harold L. Hammond, Gilbert E. Lilly, Axel Ruprecht, Christopher A. Squier, Steven D. Vincent, Philip W. Wertz
Associate professor emeritus: William J. Hausler
Professor emeritus: Philip S. Horton
Graduate degree: M.S. in Stomatology

Predoctoral Program

The department teaches dental and other health care students about diseases that manifest in and about the oral cavity. Students learn about the clinical, radiographic, laboratory, histopathologic, and therapeutic features of
these diseases as well as their etiology and natural history. They also study identification of systemic diseases through physical evaluation of patients.

**Graduate Programs**

**Master of Science**

Stomatology is the science of structure, function, and disease of the oral cavity. Study methods include examination of related histories, evaluation of clinical signs and symptoms, and use of biochemical, microscopic, and radiologic procedures to establish a diagnosis and 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 science degree program in oral science, (see “Oral Science” in the College of Dentistry introductory section of the Catalog).  

**Oral Pathology Emphasis**

**MASTER OF SCIENCE**

Dental school graduates seeking the M.S. in stomatology with oral pathology emphasis 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 AND MASTER OF SCIENCE**

The certificate in oral pathology and M.S. in stomatology and oral maxillofacial radiology emphasis combines the minimum requirements of the certificate and master’s degree programs. Completion time usually is 36 to 48 months. The educational requirements of the certificate program in oral and maxillofacial radiology meet the requirements for preparation of dental specialists set forth by the American Board of Oral and Maxillofacial Radiology.

**Oral Medicine Emphasis**

**MASTER OF SCIENCE**

Students seeking the M.S. in stomatology with oral medicine emphasis 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 AND MASTER OF SCIENCE**

The certificate in oral medicine and M.S. in stomatology with oral medicine emphasis combines the minimum requirements of the certificate and master’s degree programs. Completion time usually is 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>68:202</td>
<td>Advanced Anatomy</td>
<td>1.5 s.h.</td>
</tr>
<tr>
<td>69:204</td>
<td>General and Systemic Pathology</td>
<td>1.5 s.h.</td>
</tr>
<tr>
<td>86:200</td>
<td>Stomatologic Literature Review</td>
<td>1.5 s.h.</td>
</tr>
<tr>
<td>86:226</td>
<td>Physical, Laboratory, and Historical Features of Disease</td>
<td>1.5 s.h.</td>
</tr>
<tr>
<td>86:230</td>
<td>Research in Oral Pathology, Radiology, and Medicine</td>
<td>1.5 s.h.</td>
</tr>
<tr>
<td>86:242</td>
<td>Clinical Oral and Maxillofacial Radiology</td>
<td>1.5 s.h.</td>
</tr>
<tr>
<td>111:202</td>
<td>Research Protocol Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>111:212</td>
<td>Statistical Methods for Dental Research</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>151:210</td>
<td>Dental Sciences Research Methodology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>151:260</td>
<td>Bone and Tooth Support Structures and Implants</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**ADDITIONAL REQUIRED COURSES**

**Oral Pathology Track**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>86:225</td>
<td>Manifestations of Oral and Parooral Disease</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>86:227</td>
<td>Surgical Oral Pathology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>86:240</td>
<td>Histopathology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>86:241</td>
<td>Hospital Oral Pathology, Radiology, and Medicine</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**Oral and Maxillofacial Radiology Emphasis**

**MASTER OF SCIENCE**

Dental school graduates seeking the M.S. in stomatology with oral and maxillofacial radiology emphasis pursue comprehensive study of basic 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 AND MASTER OF SCIENCE**

The certificate in oral and maxillofacial radiology and M.S. in stomatology with oral and maxillofacial radiology emphasis combines the minimum requirements of the certificate and master’s degree programs. Completion time usually is 36 to 48 months. The educational requirements of the certificate program in oral and maxillofacial radiology meet the requirements for preparation of dental specialists set forth by the American Board of Oral and Maxillofacial Radiology.

**Facilities**

Facilities reserved exclusively for the Department of Oral Pathology, Radiology, and Medicine include a radiology special procedures area, interpretation room, seminar room, tutorial laboratory for 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. The department also maintains a library/seminar room.

In addition, the College of Dentistry has joint-use research laboratories that are well-equipped and staffed for conducting research involving histology, histochemistry, materials technology, radiobiology, ultrastructure, and electron probe analysis and quantification.

**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. Applicants must have a cumulative grade-point average of at least 2.70 (on a 4.00 scale) to be considered for admission.

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).
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 Predoctoral Students

86:120 Fundamentals 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 mucous membranes.

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 reformation for correlation of basic, clinical sciences.

86:230 Research in Oral Pathology, Radiology, and Craniofacial Diseases 1 s.h.
Integration of the clinical, laboratory, and radiographic methods; clinical case analysis.

86:238 Introduction to Histopathology 1 s.h.
Histopathologic diagnosis of diseases that affect oral and maxillofacial region. May be repeated. Consent of instructor required. Pre- or corequisite: 86:240.

86:240 Radiographic Interpretation 1 s.h.
Study of radiographic methods; troubleshooting under supervision of radiology staff.

86:241 Hospital Oral Pathology, Radiology, and Medicine 1 s.h.
Management of patient consultations, diagnosis, treatment at a hospital based dental service.

86:242 Clinical Oral and Maxillofacial Radiology 1 s.h.
Radiologic manifestations of diseases; emphasis on craniofacial complex.

86:243 Clinical Oral and Maxillofacial Radiology 1 s.h.
Clinical consultation, supervision of dental and dental hygiene students, review of their cases; participation in clinical research conferences, laboratory exercises.

86:244 Technical Oral and Maxillofacial Radiology 1 s.h.
Experience with technical maintenance of darkroom, clinical equipment; troubleshooting under supervision of radiology staff.

86:245 Head and Neck Radiology 1 s.h.
Hospital-based rotation in diagnostic radiology with participation in interpretation sessions; CT, MRI, nuclear medicine, ultrasound.

86:246 Craniofacial Radiology 1 s.h.
Hospital-based rotation in diagnostic radiology; exposure to interpretive sessions on ultrasound, CT, MRI, nuclear medicine.

86:247 Clinical Laboratory Medicine 1 s.h.
Hospital-based rotations through clinical laboratory laboratories and participation in four clinical specialty areas: hematology, chemistry, immunology, microbiology.

86:248 Advanced Complex Hospital Dental Care 1 s.h.
Hospital-based experience 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 Forensic Odontology 1 s.h.
Forensic odontology: clinical infection control and aseptic procedures in dental practice; radiation safety.

86:256 Advanced Oral Pathology 1 s.h.
Diseases involving oral mucous membranes; emphasis on bibliographic research; biodynamic analysis of pathologic processes; diagnostic interpretation; content adapted to student interests. Consent of instructor required.

ORTHODONTICS

Head: John S. Cusco
Professors: Samar E. Bishara, Richard M. Jacobs, Robert N. Staley
Associate professors: Karin A. Southard, Thomas E. Southard
Graduate Program:

Predoctoral Program

The purpose of the predoctoral 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 biologic, biomechanic, 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 satisfactory completion of Graduate College requirements.

Application deadline is September 15 for entry the following 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 growth and development, emphasis on craniofacial region.

89:130 Orthodontic Diagnosis and Its Biological Foundations 1 s.h.
Concepts of craniofacial biology basic to orthodontics diagnosis, philosophy of orthodontic problem management; development of dentition, physiology of stomatognathic system, neurophysiological considerations, growth and development, genetic variability in face and teeth, growth of cranium 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 in the general practitioner's office.

89:145 Orthodontics in General Practice 1 s.h.
Differentiation between simple, complex orthodontic problems; classification, diagnosis, treatment planning as a continuum underlying process of systematic decision making in clinical practice.

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 appointments during summer months.

For Graduate Students

89:200 Control Theory and Craniofacial Morphogenetic Systems 1 s.h.
General systems theory; control theory, cybernetics, systems analysis; role of applied human biologist, human biology as a science.

89:201 Orthodontic Theory Diagnosis and Treatment Plan 1 s.h.
Diagnosis, treatment planning implementation.

89:202 Diagnosis and Treatment Planning 1 s.h.
Literature concerning orthodontic diagnosis; treatment of particular problems; case histories of patients treated in graduate clinic.

89:203 Advanced Orthodontic Techniques 1 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 serial extraction procedure.

89:209 Orthodontic Practicum 1 s.h.
Clinical practice.

89:210 Orthodontic Seminar 1 s.h.
Evaluation, discussion, criticism, defense of diagnostic and treatment approaches to orthodontic cases that need, are undergoing, or have completed orthodontic treatment.
Graduate Program

Study in pediatric dentistry leads to either certification (two-year program) or certification and a master’s degree in either oral science or dental public health. The program gives special emphasis to preparation for certification by the American Board of Pediatric Dentistry. In addition, the three-year program in public health prepares students for certification by The American Board of Dental Public Health. The program is fully accredited by the Commission on Dental Accreditation of the American Dental Association.

Research Opportunities

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 special health care needs, 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 professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Eight of the department’s professors are diplomates of the American Board of Pediatric Dentistry.

Courses

For Predoctoral Students

90:140 Pediatric Dentistry Diagnosis and Treatment 2 s.h. Growth and development; behavior management; diagnostic preventive-restorative techniques for pediatric patients.

90:160 Clinical Pediatric Dentistry 1 s.h. Comprehensive clinical management of pediatric patients.

For Graduate Students

90:220 Social/Cultural/Public Health Issues in Pediatric Dentistry 1 s.h.

90:225 Advanced Didactic Pediatric Dentistry 1 s.h. Broad themes, including growth and development, behavior management, diagnostic preventive-restorative techniques, diseases of childhood.

90:230 Research in Pediatric Dentistry 1 s.h. Original project from design to completion; results presented in publishable form.

90:231 Thesis Preparation 1 s.h. Preparation of original research project, completion of thesis.

90:240 Advanced Pediatric Dentistry 1 s.h. Comprehensive clinical management of pediatric patients; preventive orthodontics, operative therapy, endodontia, minor oral surgery.

90:241 Pediatric Physical Diagnosis for Dental Practice 1 s.h. Principles, rationales for making a physical evaluation.

90:242 Pediatric Therapy for Dental Practitioners 1 s.h. Principles of therapy in various disease conditions.

90:245 General Anesthesia Rotation 1 s.h. Rotation in anesthesia service at The University of Iowa Hospitals and Clinics; emphasis on pediatric pharmacology, medicine.

90:250 Practice Teaching in Pediatric Dentistry 1 s.h. Observation, practice in current teaching procedures.

90:270 Pediatric Dentistry Case Review 1 s.h. Diagnostic, treatment plan approaches to patients, particularly those with growth, development problems.

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.

Financial Aid

Applicants must be financially prepared to undertake uninterrupted studies. Assistantships and loans are offered, depending on available resources.

Facilities

The department has 20 modern, well-equipped laboratories devoted exclusively to periodontics, and access to hospital experience in the nearby University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center.

Research facilities include collegiate laboratories in histology, microscopy, biomaterials, histocompatibility, tissue culture, molecular biology and biochemistry, and microbiology, as well as animal facilities. These collegiate facilities are in addition to those available by arrangement with The University of Iowa Hospitals and Clinics, Eckstein Medical Research Building, and medical laboratories; and the Veterans Affairs Medical Center.

Courses

**For Predoctoral Students**

92:140 Periodontics Methods I 1 s.h.
Normal periodontium, gingivitis, periodontitis, diagnosis, prognosis, treatment planning.
92:141 Periodontics Methods II 1 s.h.
Initial phase of periodontal therapy, treatment of acute periodontal problems, curative, 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 Clinical 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 lecturing, 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.
Original research project, thesis.
92:240 Advanced Clinical Periodontics arr.
Comprehensive clinical management of periodontal patient; emphasis on complex cases.

Preventive and Community Dentistry

**Preventive and Community Dentistry**

Head: Jed S. Hand
Professors: Jed S. Hand, Steven M. Levy, Henrietta L. Logan, Nelson S. Logan
Professors emeriti: Naham C. Cons, W. Philip Phair
Associate professors: Alajern J. Bolden, Marsha A. Cunningham, Peter C. Damuto, Howard M. Field, Kay D. Mescher, Lawrence C. Peterson, Derek H. Willard
Adjunct associate professors: Hermine McLaren, Jamie Sharp
Clinical associate professor: Eugene W. Young
Assistant professors: Howard J. Cowen, Catherine A. Watkins
Adjunct assistant professors: Marcia E. Boyer, Jane R. Jakobsen, Teresa A. Marshall, Darrell W. Yeaney
Graduate degree: M.S. in Dental Public Health

**Preventorl 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 Predoctoral Students**

111:116 Fundamentals of Clinical Dentistry 3 s.h.
Identification of health and disease in the mouth, practical methods of disease control, philosophy of preventive dentistry; patient assessment, clinical diagnosis. Offered fall semesters.

111:117 Cariology and Preventive Therapies 1 s.h.
Multifactorial etiology of dental caries; support data for use of fluorides, sealants, antimicrobials, and plaque control mechanisms in control, prevention of caries; case study approach. Offered spring semesters. Prerequisite: 111:116.

111:118 Preventive Dentistry, Communication, and Patient Care 2 s.h.
Patient oral assessment, communication, patient management skills; oral hygiene instruction for collegiate recall patients; skills in instrumentation for detection, removal of calculus deposits. Offered summer sessions. Prerequisite: 111:117.

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: 111:118.

111:160 The Practice of Dentistry in the Community I 1-2 s.h.
Dental public health, history of dentistry, dental personnel, organized dentistry, professional issues, evaluation of scientific research. 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 Broadlawns Medical Center arr.
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

111:186 Colorado Migrant Program arr.
Provision of primary dental care, outreach services to a migrant population; broad understanding of needs, resources for migrant, low socioeconomic populations.

111:187 Community Health Care: Davenport arr.
Experience as part of health care team at medical-dental ambulatory health care facility serving Scott County; eight-operative dental clinic.

111:188 Dental Health Center-East Central Iowa arr.
Provision of clinical, outreach services for low income children and adults with developmental disabilities at St. Luke’s Hospital, Cedar Rapids; operative and behavioral dental problems, hospital protocol, special needs of low socioeconomic clients.

111:189 Special Care Program arr.
Provision of dental care to physically and medically compromised adult patients; use portable dental equipment to care for nursing home residents.

111:193 Veterans Administration Medical Center: Knoxville arr.
Provision of dental care to inpatient and outpatient veterans in a 900-bed neuropsychiatric and geriatric hospital; observation of other hospital departments, such as physical therapy, rehabilitative medicine, psychiatry.

111:194 Special Field Clinic arr.
Extramural experiences developed according to student needs, extramural opportunities. Department approval required.

111:195 Hospital Externship arr.
Experience in alternate dental care delivery systems; usually out-of-state. Department approval required.

For Graduate Students

111:200 Literature Review Methods: Dental Health Science, philosophy, practice of dental public health.
2 s.h.

111:201 Research Protocol Seminar arr.
Concepts and process of literature review, particularly in area of student’s interest.
2 s.h.

Development of a master’s thesis protocol; identification of thesis topic, review of relevant literature, outline of potential research methods.
2 s.h.

111:203 Independent Study Dental Public Health arr.
Approval of faculty supervisor required.
2 s.h.

111:204 Principles of Oral Epidemiology 3 s.h.
Retrospective, prospective, cohort study designs; validity and reliability; distribution and determinants of oral diseases — canes, periodontal diseases, oral cancer, malocclusion, fluorosis, HIV infection.

111:205 Administration of Public Dental Health Programs 2 s.h.
Application of general management concepts, practical aspects of planning, financing, staffing, implementing, operating, evaluating dental public health programs at federal, state, local levels.

111:206 Preventive Programs in Dental Public Health 2 s.h.
Prevention, control methods for major dental conditions, primarily dental canes, periodontal diseases; clinical efficacy, cost-effectiveness; development of comprehensive preventive oral health plan for a community.

111:207 Health Promotion and Behavior 2 s.h.
Literature in social, behavioral sciences applied to dentistry; analysis of research.

111:208 Field Experience in Dental Public Health arr.
Arranged with public and voluntary health agencies according to students’ and agencies’ needs.

Protocol preparation; data collection, analysis, organization; writing, defense of research.

111:212 Statistical Methods for Dental Research 5 s.h.
Descriptive methods, elementary probability, distributions, populations and samples, methods for analyzing percentage data and paired and unpaired measurement data, regression, correlation and analysis of variance.

111:214 Financing Dental Care 2 s.h.
Payment mechanisms for health care service providers, third party prepayment plans, salaried and public financed programs, Medicare and Medicaid programs, national health insurance systems.

111:215 Introduction to Statistical Computing 2 s.h.
Use of statistical packages on a mainframe or personal computer for data management and analysis.

111:216 Teaching Practicum: Special Care/Geriatric Dentistry arr.
Philosophies of dental education, teaching methodologies and evaluation; historical and current concepts, practical experiences from supervised didactic and clinical teaching in 111:109.

111:217 Teaching Practicum: Preventive Dentistry arr.
Philosophies of dental education, teaching methodologies and evaluation; historical and current concepts, practical experiences from supervised didactic and clinical teaching in 111:106, 111:118, or 111:145.

111:218 Teaching Practicum: Community Dentistry arr.
Philosophies of dental education, teaching methodologies and evaluation; historical and current concepts, practical experiences from supervised teaching in 111:106 or 111:161.

111:224 Research Design in Dentistry 2 s.h.
Types of studies used in dentistry; design validity; sampling methodologies; major descriptive and experimental designs used in dental research; application of statistical tests to these designs.

111:230 Geriatric Care I arr.
Diagnosis, management of geriatric dental health care problems; emphasis on clinical dental treatment; case study approach.

111:231 Geriatric Care II arr.
Continuation of 111:230, which is prerequisite.

PROSTHODONTICS

Head: Forrest R. Scandrett
Professors: Steven A. Aquilina, Ronald L. Etinger, William E. LaVelle, Forrest R. Scandrett
Professors emeriti: Ralph C. Appleby, Max L. Smith, Keith E. Thayer

Ph.D. students: James M.S. Clancy, Robert L. Schneider, Clark M. Stanford

Associate professors emeritus: Thaxter H. Miller

Clinical associate professor: Robert J. Luebk

Clinical associate professor: Michael R. Arcuri, Chris R. Haganman, Thomas L. Huff, Terry L. Lindquist, Derrick L. Williamson

Assistant professor emeritus: Arthur N. Kracht

Adjunct assistant professors: Robert A. Strug, John G. Wells

Clinical assistant professor: Lawrence R. Huber

Adjunct instructors: Frederick R. Drexler, Charles W. Tucker

Graduate degree: M.S. in Oral Science

Prosthodontics is the dentistry specialty involving crowns, fixed partial dentures (bridges), removable partial dentures, complete dentures, maxillofacial prostheses, and implant prostheses.

Predoctoral Program

The predoctoral program provides students with the basic principles, practices, and concepts of prosthodontics required for the practice of general dentistry, through laboratory projects and treatment of patients with differing prosthodontic needs.

Graduate Programs

The department offers Master of Science and certificate programs. 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 examinations. 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 may provide more clinical experience than the M.S. program and does not require a thesis. Students must complete a core curriculum, which includes basic sciences, research methodology, and clinical practice — fixed, removable, maxillofacial, 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 34 months and usually begin July 1. Application deadline is November 1.

Courses

For Predoctoral Students

84:122 Principles of Occlusion 2 s.h.
Concepts of occlusion, mastication; interdisciplinary approach.

84:140 Removable Prosthodontic Technique Lecture 3 s.h.
Technical procedures for construction of complete and removable partial dentures.

84:141 Removable Prosthodontic Technique Laboratory 3 s.h.
Laboratory exercises.

84:142 Fixed Prosthodontic Technique Lecture 3 s.h.
Definitions, materials, techniques for construction of metal, porcelain fixed restorations.

84:143 Fixed Prosthodontic Technique Laboratory 3 s.h.
Technical procedures for construction of fixed prostheses.

84:160 Prosthodontic Clinic 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 Literature Review I 1 s.h.
Fixed prosthodontic procedures; assigned readings, discussion of related research.

84:221 Fixed Prosthodontics Literature Review II 1 s.h.
Porcelain-fused-to-metal and ceramic restorations, color science and esthetics; assigned readings, discussion of related research.

84:222 Implant Literature Review 1 s.h.
Implant prosthodontics; assigned readings, discussion of related research.

84:223 Occlusion Seminar 1 s.h.
Research topics.

84:224 Graduate Restorative Materials 2 s.h.

84:225 Complete Denture Literature Review 1 s.h.
Complete denture prosthodontics; assigned readings, discussion of related research.

84:226 RPD Literature Review 1 s.h.
Removable partial denture prosthodontics; assigned readings, discussion of related research.

84:230 Research: Prosthodontics arr.
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.
Research introduction to biomaterials. Same as 82:236.

84:240 Advanced Clinical Prosthodontics arr.
Treatment of patients requiring fixed, removable, and implant prosthodontics.

84:241 Advanced Removable Prosthodontic Techniques arr.
Completion of laboratory procedures in the construction of complete and removable partial dentures.

84:242 Practice Teaching Prosthodontics arr.
Clinical, classroom teaching experience.

84:246 Advanced Fixed Prosthodontic Techniques arr.
Completion of laboratory procedures in the construction of crowns and fixed partial dentures.

84:250 Journal Club Prosthodontics 1 s.h.
Prosthodontics; current literature.

84:251 Clinical Issues and Treatment Planning in Prosthodontics arr.
Treatment planning, delivery for complex prosthodontic patient; patient presentations.

84:252 Library Assignments: Prosthodontics arr.
Literature search, preparation of bibliographies, abstracts.
College of Education

An Iowa Communications Network classroom

Counselor Education 313
Curriculum and Instruction 316
Planning, Policy, and Leadership Studies 336
Psychological and Quantitative Foundations 342

Dean: Steven R. Yussen
Associate deans: Donald B. Yarbrough, Richard D. Shepardson
Director, Belin-Blank gifted education center: Nicholas Colangelo
Director, educational placement: Judith D. Hendershot
Director, Iowa Testing Programs: Robert L. Brennan

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 who are interested 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 Arts General Education requirements for the Bachelor of Arts or Bachelor of Science.

Undergraduate Admission to Teacher Education Programs

Undergraduate applicants to The University of Iowa who wish to become teachers indicate their interest in the elementary major, health occupations major, or a specific secondary-level endorsement program on their application for admission. This results in a “Pre-Elementary Major” (TEP) or a “Secondary Interest” (75P) notation on the student’s official records.

Eligible transfer students are automatically sent TEP application materials from the Office of Admissions when they are admitted to the University. All others must obtain application materials from the Office of Student Services in the College of 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; they may be accepted if they are qualified and if there are openings in the program.

General Requirements

Admission to teacher education programs is 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 satisfy the following:

- admission to The University of Iowa as a degree candidate;
- completion of the American College Tests (ACT) or the Scholastic Aptitude Test (SAT);
- attainment of sophomore standing (30 semester hours completed) before the semester during which enrollment is made in the teacher education sequence of courses;
- a grade-point average of at least 2.70 on all college course work as well as course work completed at The University of Iowa; and
- application 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 maintained a 3.50 grade-point average. Students with lower GPAs who have demonstrated research potential may be accepted on the basis of an interview with the education honors director. The Honors Opportunities Program consists of three components:

- 7X: 100 Honors Seminar in Education, a research mentorship, and a student development program that includes career counseling and social activities. Successful completion of a research project results in honors designation on the diploma.
- The Honors Opportunities Program is housed in and adminstered by the Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development.

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 and state their objective as “certification only” or as some secondary teaching areas with a Master of Arts in Teaching (M.A.T.) objective. Students who choose this route must satisfy these:
  - admission to the Graduate College;
  - completion of the Graduate Record Examination (GRE) General Test;
  - a cumulative grade-point average of at least 2.70 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).

Or they may apply to the College of Liberal Arts as postbaccalaureate students with senior standing. Students who choose 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.

Graduate or Postbaccalaureate Admission

Applicants who do not meet the deadline may submit applications by either September 15 or February 15; they may be accepted if they are qualified and if there are openings in the program. 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.

To be admitted to the senior-year student teaching semester, students must submit a separate application to the Office of Student Services in the College of Education. The deadline is February 15 of the spring semester before the academic year during which the student teaching is to be completed. Opportunities for international 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’s required grade-point average of at least 2.70.

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 substitute for program requirements should consult with their advisers.

Urban Student Teaching

Students who want to advance their educational interest through student teaching in an urban setting may apply through the Office of Student Field Experiences. A popular setting for urban student teaching is the Aldine, Texas, (Houston suburb) Independent School District. This option is open to all education majors who...
meet the requirements for student teaching. For more information about this program, consult the TEP coordinator of field experiences.

**International Student Teaching**

International student teaching experience is available in cooperation with the University of Wisconsin–River Falls. Sites 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. International assignments are for seven to eight weeks. Secondary education students in some program areas are required to complete a full semester of student teaching in the United States before student teaching at the international site. Elementary education students complete a two-week classroom management course followed by seven weeks in an assignment stateside and seven weeks in an international assignment during one semester. For more information about international student teaching opportunities, consult the TEP coordinator of field experiences.

**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 offers 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 from 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., Ph.D.
- **Counseling and Human Development**
  M.A., Ph.D.
- **Rehabilitation Counseling**
  M.A., Ph.D.
- **Student Development in Postsecondary Education**
  M.A., Ph.D.
- **Substance Abuse Counseling**
  M.A.
- **Curriculum and Instruction**
  M.A.T., M.A., M.S., Ed.S., Ph.D.
- **Art Education**
  M.A.
- **Curriculum and Supervision**
  M.A., Ed.S., Ph.D.
- **Developmental Reading**
  M.A.
- **Early Childhood 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.
- **Mathematics Education**
  M.A., Ph.D.
- **Science Education**
  M.S., M.A.T., Ed.S., Ph.D.
- **Social Studies Education**
  M.A., Ph.D.
- **Special Education**
  M.A., 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., Ph.D.
- **School Psychology**
  Ed.S., Ph.D.

**Master of Arts in Teaching**

The M.A.T. program is designed for academically superior liberal arts graduates who completed few or no professional education courses in their undergraduate program. It is a nonthesis program of at least 42-semester-hours. Requirements are listed under “Curriculum and Instruction” in this section of the Catalog.

The program leads to a master’s degree and licensure as a secondary teacher in the fields of English, foreign languages, and science education. Admission to the program requires a grade-point average of at least 3.00 in undergraduate course work. Requirements include 18 semester hours of graduate course work in the student’s teaching field. 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. Although the nonthesis program is not necessarily a terminal program, students who expect to continue their studies in a doctoral program are urged to select the M.A. thesis program since it offers more experience in research procedures. Students who complete a nonthesis M.A. and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their adviser or division during the early part of their doctoral program.

Course credits earned more than 10 years before the session in which the degree is to be conferred do not count 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 for professional work in fields such 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 experience, 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 the Ed.S. requires students to complete 15 semester hours of resident work on campus in one 12-month period or in two
summer sessions. Also, course work completed 10 years prior to the final examination must be evaluated to determine the amount of credit that may be accepted toward fulfillment of program requirements.

Doctor of Philosophy
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.

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 wish to update their knowledge or who are temporarily undecided about career plans. Students should file a change of status stating a specific program objective at the earliest opportunity.

Extramural Education
Through the Division of Continuing Education, selected College of Education courses are offered at off-campus sites and hours outside the traditional schedule. If taken after formal admission to a specific program, some of these courses may be applied to meet residency requirements for degrees. There are, however, special regulations governing such course work. Students should obtain prior approval from their program adviser before registering in extramural courses. Students not regularly admitted to The University of Iowa also may register in extramural courses, but credit earned before admission 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 in Iowa and outside of the state.

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 for use in the lab.

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 audiovisual 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.

The lab also offers a variety of media production courses for graduate students in the instructional design and technology program and for undergraduates in the teacher education program. A multimedia computer lab and an Iowa Communications Network (ICN) fiber-optic classroom are recent additions to the Instructional Media Production Laboratory.

Libraries
The Main Library and the Psychology Library provide books, periodicals, reference works, videos, 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. Students planning careers in education and related areas have access to a variety of resources in the information center, which provides career information, community and state data, and directories of schools, colleges, and agencies.

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.

Belin-Blank Gifted Education Center
The Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development conducts research and service in gifted education. It also gathers and disseminates information on the education of gifted students. Based in the College of Education, the center was established in 1988 by the State Board of Regents and was renamed in 1995.

The center’s programs and services include the Connie Belin Fellowship Program in Gifted Education; the Honors Opportunities Program; Invent, Iowa!; the Henry B. and Jocelyn Wallace National Research Symposium on Talent Development; family counseling; consultation; educational assessment; practicum and internship experiences; course work in gifted education; talent searches; and a number of precollege 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.

The center is headquarters for the World Council for Gifted and Talented Children, the major international organization in the field.

For more information, contact the Belin-Blank 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 the Iowa NCA State Committee’s state director.
Institute for School Executives

The Institute for School Executives is a membership organization for school districts and other educational agencies. Established more than a decade ago and operated by the College of Education, 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, offers limited funds for faculty research efforts, helps faculty with grant acquisition and preparation, 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 between University faculty and students and school districts by placing and coordinating research projects with districts willing to participate in the studies. All University faculty, students, and staff who are planning to conduct research using elementary or secondary students as subjects should contact the Cooperating Schools Program.

Special Resources

The School Program for Emotionally Disturbed Children is located in the child psychiatry unit of University Hospitals and Clinics Psychiatric Service. Children who attend this school are resident patients in the unit. 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. Many assistantships are listed in a reference available at the Office of Student Services.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships as well as for fellowships and related employment opportunities. Inquiries should be addressed to the chair of the 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 funds to support a limited number of special graduate assistantships in education. In which students work in a research capacity under the direction of a faculty member of their choice. Students must be enrolled for at least 6 but not more than 12 semester hours per semester; the assistantships are for the academic year only and are renewable for a limited number of years. 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.

Candidates must submit transcripts of all completed college work (undergraduate as well as graduate), recommendation forms specific to the assistantship, 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 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: for a transfer student from an Iowa community college who is enrolled in a College of Education program. The award is based on academic performance.

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 majoring in marriage and family therapy entering the dissertation phase of the doctoral program.

The Blommers-Hieronymus-Feldt Scholarship: awarded annually to a doctoral student in the field of educational measurement and statistics; nominees must have completed at least one full year in the graduate program at The University of Iowa. The award is based on academic performance in graduate course work and professional promise in the field of measurement and statistics; it 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: for an outstanding doctoral student engaged in research on the psychological or quantitative foundations of education. The award may be presented to one international student and one permanent resident of the United States each year.

The Harvey H. Davis Award: for an outstanding graduate student majoring in education whose specialization is adult and continuing education.

The Harvey D. Davis Award: for 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: for 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 McClanahan Award: for the outstanding candidate for an advanced degree in educational administration.

The Leonard A. Miller Memorial Award: for 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 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: for outstanding students of high scholarship who show promise in the professional areas of research, teaching, or writing and who exhibit striking personal qualities.

The Betty Piercy Scholarship Award: for an outstanding student in reading who is expected to benefit the field in some direct way.

The Senior Honors Project Award: for graduating seniors in the College of Education who have completed the honors seminar and submitted an outstanding paper as part of the seniors honors project.

The Franklin Stone International Student Award: for an outstanding international student pursuing a Ph.D. in education.

The James and Coretta Stroud Fellowship: for students pursuing a Ph.D. in education.

The Betty Picou Fellowship: for students of high scholarship who show promise in the professional areas of research, teaching, or writing and who exhibit striking personal qualities.

The Betty Picou Fellowship: for an outstanding first-year M.A. student majoring in counseling.

The Senior Honors Project Award: for graduating seniors in the College of Education who have completed the honors seminar and submitted an outstanding paper as part of the seniors honors project.

The James and Coretta Stroud Fellowship: for students pursuing a Ph.D. in education.

The Betty Picou Fellowship: for students of high scholarship who show promise in the professional areas of research, teaching, or writing and who exhibit striking personal qualities.

The Betty Picou Fellowship: for an outstanding first-year M.A. student majoring in counseling.

COUNSELOR EDUCATION

Chair: Richard Dustin
Professors: Nicholas Colangelo, Richard Dustin, Albert B. Hood, David A. Jensen, Dennis R. Maki
Professors emeriti: Harold B. Engen, C. Esco Obermann
Associate professors: Leslie Margolin, William A. Matthes, David M. Rosenhal, Villa Tarydias
Associate professor emeritus: Ralph R. Roberts Jr.
Assistant professors: Debora Liddell, Anne Helene Skinstad, Paul Teth
Adjunct assistant professors: John Bayless, David Grady, Elisa Grajales, Maureen Lienau, Phillip Jones, Johnnie Sims, Pat Wynn
Adjunct instructors: Arthur Schut, Orville Townsend
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, 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 and Doctor of Philosophy typically are 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. or Ph. D., and his or her serious commitment to the profession.

In addition to the above, the following requirements must be met for the individual programs.

Master of Arts: An undergraduate grade-point average of at least 2.75 and a composite (verbal and quantitative) GRE General Test score of 1000 or higher

Doctor of Philosophy: An undergraduate grade-point average of at least 3.00 or, if a graduate degree has been completed, a graduate grade-point average of at least 3.30; 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.

Master’s-level courses and experiences to be completed are determined in consultation with the adviser and are included in a student’s curriculum plan.

Foreign Students

Foreign students also must provide a Test of English as a Foreign Language (TOEFL) score with their applications. Typically, a score of 580 is required. Depending on the TOEFL score, the division may require students to take and pass University of Iowa course work in English usage that is designed especially for them.

Final Decision, Special Requirements

The criteria listed above are minimum standards in considering applicants for admission. Final decisions on admissions are made by faculty committees. Also, some programs may have specific admission requirements due to licensure/certification standards. For example, a teaching licensure/certificate is required for students pursuing certification in school counseling. Arty special admission requirements are listed with individual programs.

Conditional Admissions

Applicants who do not meet all the minimum requirements for regular admission consideration may still be admitted on a conditional basis if the faculty determines that there are strengths and promises warranting conditional status. The following are divisional conditions.

At the M.A. level: Students must complete 12 semester hours of core courses (approved by an adviser) over two consecutive sessions and earn a cumulative grade-point average of at least 3.00.

At the Ph.D. level: Students must complete 12 semester hours of core courses (approved by an adviser) over two consecutive sessions and earn a cumulative grade-point average of at least 3.30.

Maintaining Candidacy

All graduate students must meet the following standards in order to maintain their candidacy for degree.

Maintain the grade-point average required for their curriculum plan: 3.00 for M.A., 3.30 for Ph.D.

Successfully complete a practicum, internship, or equivalent professional experience.

Maintain professional behavior consistent with the American Counseling Association code of ethics and any additional code of professional ethics adhered to in any agency in which the student completes a practicum or internship.
Demonstrate progress toward the degree through successful completion of hours specified in the curriculum plan and 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 probation status. Students on probation 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 probation period during his or her program of study.

**Application**

Applications must be complete before they will be reviewed. Applicants are responsible for providing a complete application dossier; to check on whether an application dossier is complete, contact the College of Education Office of Student Services. Application forms are available from the secretary of the Division of Counselor Education.

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.

Up-to-date application information, including application deadlines, is available on the College of Education home page, at The University of Iowa World Wide Web site.

**Graduate Programs**

**Student Development in Postsecondary Education**

**Master of Arts**

The M.A. program provides preparation for college positions in admissions, student activities, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counseling, and continuing education, and external degree programs. With experience, it is a foundation for positions as student deans and college teachers. The program is accredited by the Council of Accreditation of Counseling and Related Programs (CACREP).

No specific program of undergraduate study or work experience is required for admission to the M.A. program. A personal interview is desirable but not required.

**Specialist in Education**

The Division of Counselor Education no longer accepts new enrollments in the Ed.S. program in counseling and human development. The program will close when currently enrolled students complete their degrees.

**Doctor of Philosophy**

The Ph.D. program, also 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. thesis or its equivalent is not necessary for admission to the Ph.D. program. However, in order to take the Ph.D. comprehensive examination, students must offer an M.A. thesis or equivalent as evidence of ability to do research.

**Rehabilitation Counseling**

**Master of Arts**

The M.A. program in rehabilitation counseling prepares professionals to provide direct services and coordinate resources for persons with disabilities. Counselors work in many settings to assist persons with physical, mental, and social disabilities become more productive, satisfied members of society. Graduates of the program are eligible to take the Certified Rehabilitation Counselor Examination.

The program is accredited by the Council on Rehabilitation Education (CORE).

**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.

Applicants who have recently graduated from an M.A. program in rehabilitation counseling and who have not had at least one year of full-time work experience in rehabilitation counseling are not considered. Work experience is highly desirable and enhances the application.

**Counseling and Human Development**

**Licensure/Certification**

Applicants with master's degrees in counseling or a related field, elementary or secondary school teaching licenses, and at least one year of successful teaching experience may apply for licensure in school counseling. The counseling and human development program provides preparation for licensure in Iowa (K-12).

**Master of Arts**

The M.A. program, accredited by the Council of Accreditation of Counseling and Related Professions (CACREP), provides preparation for counseling in a school setting.

**Specialist in Education**

The Division of Counselor Education no longer accepts new enrollments in the Ed.S. program in counseling and human development. The program will close when currently enrolled students complete their degrees.

**Doctor of Philosophy**

The Ph.D. program, also accredited by CACREP, provides preparation for teaching, leadership, and research positions in counseling and related fields.

**Substance Abuse Counseling**

**Master of Arts**

The M.A. program in substance abuse counseling prepares individuals to function in a wide variety of community counseling settings, with special expertise in prevention, intervention, and treatment strategies for substance-related dysfunction. The emphasis is on individual, group, and family counseling.

**Financial Aid**

Depending on federal funding, graduate training fellowships may be available for students entering rehabilitation counseling. Many other graduate students in the Division of Counselor Education hold a wide variety of graduate assistantships. For example, many of the University's student service units award part-time assistantships to graduate students in the division. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

**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:81 Making a Vocational-Educational Choice 2 s.h.
- Vocational decision-making process; self-evaluation, exploration of the world of work; for students who are uncertain about their educational and vocational goals.
- 7C:112 Human Sexuality 1-3 s.h.
- 7C:119 Family Issues in Giftedness 1 s.h.
- Family dynamics and issues that arise when one or more children are identified as gifted; parent/child, sibling, school/family relationships.
- 7C:120 Psychology of Giftedness 3 s.h.
- Theories of learning, child development, motivation; issues unique to gifted education. Same as 7P: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 grades K-12; ability, aptitude, achievement tests; current issues in the use of various instruments. Same as TP:121.

7C:123 Gender Issues and Giftedness 1 s.h.
Effect of gender on development of giftedness; differential needs of girls, boys; strategies for effective teaching, gender equity.

7C:124 Ethic and Cultural Issues and Giftedness 1 s.h.
Effect of ethnicity and culture on development of giftedness; special needs of Black, Hispanic, Native American, and Asian gifted students; strategies for identification, programming.

7C:126 Cognitive and Affective Needs of Underachieving Gifted 1 s.h.
Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as TP:126.

7C:127 Research and Theory in Talent/Giftedness 1 s.h.
Biennial research symposium. Same as TP: 127.

7C:128 Advanced Leadership Seminar in Gifted Education 1 s.h.
Development of administrative policies and programming based on empirical research; for experienced leaders in gifted education.

7C:133 Culturally Different in Diverse Settings 3 s.h.
Problems in serving culturally different persons in society: research regarding the influence of background on potential. GE: cultural diversity. 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:144 Conflict and Violence in Families 3 s.h.
Dysfunction, 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 role development and socialization in a variety of settings; strategies for change.

7C:162 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.
Evolution of the family therapy movement and issues related to functional and dysfunctional family systems; significant models of family therapy and specific techniques.

7C:178 Microcounselling 1, 3 s.h.
Foundation of skills in listening, responding, empathy, focus; advanced skills of meaning, confrontation, reframing, directives, action skills; large-group video instruction with closed-circuit video feedback for small-group practice sessions.

7C:180 Workshop in Counselor Education 1-2 s.h.
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 counseling 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.
Experience in developing course materials for classes offered through the Belin Center. Same as 7E:188, 7S:188, 7U:188.

7C:190 Group Processes for Related Professions 3 s.h.
Small group processes for personal and organizational development in educational settings; discussions of theoretical issues and research findings with supplemented demonstrations; participation in a personal growth group. Consent of instructor required.

7C:193 Individual Instruction in Counselor Education –Undergraduate 1 s.h.
Consent of instructor required.

7C:199 Counseling for Related Professions 3 s.h.
Counseling theories and techniques; small-group discussions, demonstrations, lectures. Open only to nonmajors.

7C:202 Introduction to Group Counseling 3 s.h.
Research, theory, practice in group counseling; participation in groups and evaluation of various leadership styles. Counselor education major or consent of instructor required.

7C:203 Career Guidance and Job Placement 3 s.h.
Preparation for helping people learn about, decide upon, and enter work roles; career development concepts and theories, work environments, career decision aids and objectives, exemplary methods and materials, evaluation procedures.

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 0-3 s.h.
May be repeated. Same as 42:216, 96:216.

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.
Student-planned and conducted programs of primary prevention in the schools, grade K-12; conflicts inherent in normal personality development; current societal conditions that commonly lead to individual distress.

7C:237 Seminar in Gifted Education 2-3 s.h.
Teaching and counseling needs of gifted students K-12; intensive 10-day residential program. Open only to teachers with Belin Fellowship. Consent of instructor required.

7C:238 Advanced Seminar in Gifted Education 3 s.h.
Supervisory, administrative, and research issues; fellowships for seminar participants. 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:254 Appraisal in Counseling 3 s.h.
Ability, interest, personality tests used for assessment in counseling and personnel selection; laboratory practice in test administration, scoring, interpretation, reporting, Pre- or corequisite: 7P:141 or equivalent.

7C:255 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.
Introduction to counseling theory and techniques as applied to problems of marriage and the family; for advanced graduate students. Consent of instructor required. Recommended: 7C:178 and 7C:221.

7C:263 Consultation Theory and Practice 2-3 s.h.
Analysis of various consultation models, such as behavioral and mental health. Same as TP:263, TP:263, TP: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 professional practice.

7C:280 Topical Seminar in Counselor Education arr.
Special topic designed to cover contemporary problems of concern to counselors in specific settings. May be repeated.

7C:281 Introduction to Computer Technology in Counselor Education 1 s.h.
M.A. 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/dependence, assessment, evaluation; diagnostic systems and diagnosis for groups with deferential concerns (e.g., adolescents, women, minorities, elderly); differential treatment modalities, 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 experience counseling clients with substance-related problems for substance abuse counseling students. Consent of instructor required.

7C:290 Practicum in Group Facilitation 3 s.h.
Supervised experience as facilitator and/or cofacilitator in counseling groups, other types of growth groups. Consent of instructor required. Prerequisite: 7C:202 or equivalent.

7C:293 Individual Instruction in Counselor Education 3 s.h.
Consent of instructor required.

7C:300 Practicum in School Counseling 3 s.h.
Supervised experience counseling and counseling in elementary, secondary settings. Prerequisite: completion of counseling and human development core courses.

7C:301 Practicum in Elementary School Counseling 3 s.h.
Supervised experience in an elementary school setting (K-6); emphasis on roles and expectations of a counselor. Consent of instructor required.

7C:302 Practicum in Secondary School Counseling 3 s.h.
Supervised experience in a secondary school setting (7-12); emphasis on roles of a counselor in an agency, community mental health center, similar settings. Consent of instructor required.

7C:304 Practicum in Postsecondary Counseling 3 s.h.
Supervised experience in postsecondary school settings such as community colleges, colleges, related settings; emphasis on roles 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.
For graduate students who have had course work in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Consent of instructor required. Prerequisite: 7C:178 or equivalent. Same as TP:311.

7C:320 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:330 Introduction to Student Services 3 s.h.
History, philosophy, overview of student services in higher education; review of standards and ethics; emphasis on institutional cultures, student trends.

7C:331 The College Student 2-3 s.h.
Psychological and sociological characteristics of college students; student development theories and implications for higher education.

7C:332 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:333 Practicum in Student Services 3 s.h.
Supervised experience in college student service agencies. May be repeated.

7C:335 Administration of Student Services 3 s.h.
Administrative structures, applied ethics in the workplace, crisis management, legal issues, case studies, budgeting.

7C:341 Job Development, Placement, 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 Psychological and Social Aspects of Disability 3 s.h.
Dynamics of adjustment and coping for chronically ill persons or those with disabilities; somatopsychological and psychosocial perspectives on disability.
CURRICULUM AND INSTRUCTION

Chair: William H. Nibbelink
Professors emeriti: Jack Bagford, Louise Beltramo, G. Robert Carlsen, Beatrice A. Furrier, John H. Haefner, Clifford E. Howe, Jerry N. Kuhn, Dorothy T. McDonald, Lloyd Smith, Marilyn J. Zweng


Associate professors emeriti: Louis F. Brown, John W. Conner, Gary F. Hansen, John Kiraly Jr., Arche J. McKinnon, Louane L. Newsome, Jeanette Schall

Assistant professors: Carolyn Colvin, Bruce Fehn, Michael E. Everson, Greg Hamot, Carlos Rodriguez, Rahma Wade, Kathryn Whinmore, Rose Ziebek

Assistant professors emeriti: Iva M. Bader, Murray Martin

Adjunct assistant professor: Theresa M. Oehme
Instructor: Richard P. Johns

Licensure/Teacher Education, Certification

Before taking required professional education courses, undergraduate students must be admitted to the teacher education program (TEP). The application for admission should be submitted to the College of Education Office of 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 cumulative grade-point average of at least 2.70. For some subject areas, additional criteria must be met. A limited number of applicants are accepted into each subject area TEP, so a 2.70 grade-point average falls below 2.70, the student is placed on probation for one semester. Students who do not attain a 2.70 grade-point average during the probationary semester are 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 Graduate College for “certification only” or to an 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 TEP program area, so meeting the Graduate College admission requirements does not ensure admission. Admission decisions are based on grade-point average in the undergraduate major and other criteria relevant to teaching. Upon admission to the TEP, students are assigned an education adviser.

Admission to Student Teaching

Admission to the student teaching semester 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 all specific program area requirements is made when the student applies 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 specific licensure programs.

Elementary Education

FOUNDBATION COURSES

These five courses must be completed before methods courses (“Block A” and “B,” below) are begun.

7E:91 Pre-Teacher Practicum, Elementary 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 I 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:161 Methods: Elementary School Social Studies 2 s.h.
7E:162 Methods: Elementary School Science 2 s.h.
7E:161 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)
One biological science and one physical science course

AREA OF SPECIALIZATION
A minimum of 24 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 may be completed before or after student teaching.

STUDENT TEACHING
A minimum of 14 semester hours of student teaching is required for students seeking initial certification.
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 0, 3 s.h.

The liberal arts and elementary requirements total approximately 113-139 semester hours. Students who meet or test out of the rhetoric, foreign language, mathematics, and other liberal arts General Education Program requirements may be able to satisfy their program requirements in as few as 113 semester hours. Transfer students must complete at least 8 semester hours of coursework, including two courses numbered 7E:160-7E:164 or 7E:123 at The University of Iowa, before they student teach. Transfer students must follow the normal application procedures. In addition, they are asked to complete a disclosure statement describing all practicum experiences they have taken at other institutions and a release statement allowing the College of Education’s Office of Student Services to contact all institutions where they have done professional preparatory work.

ADDITIONAL 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. Addresses for other state licensure/certification 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, or Bachelor of Music 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 one or more 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
Journalism
Mathematics
Music
*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 can 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:99 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, 22M:2, and 22M:3 do not apply)
One biological science and one physical science course 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:99, 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 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 can 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 a master’s degree in special education. This degree includes certification in an area or areas selected by the student. 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. Students must hold a valid prekindergarten/kindergarten or elementary endorsement or equivalent.

Non-native students must have a TOEFL score of at least 550 to be eligible for admission; those 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**

Both of these:
- 7E:268 Curriculum Development in Early Childhood (0-5 Years) 3 s.h.
- 7E:308 Seminar: Research and Current Issues (Early Childhood-Section 3) 3 s.h.

Three of these:
- 7E:189 Development and Administration of Child Care Centers 3 s.h.
- 7E:267 Curriculum Development in Early Childhood (5-8 Years) 3 s.h.
- 7E:268 Curriculum Development in Early Childhood (0-5 Years) 3 s.h.
- 7E:308 Seminar: Research and Current Issues (Early Childhood-Section 3) 3 s.h.

**RELATED COURSES**

One of these (or an approved substitute):
- 7P:206 Advanced Child Development 3 s.h.
- 31:14 Cognitive Development of Children 3 s.h.
- 7E:114 Parent-Child Relationships 3 s.h.
- 7E:134 Parent-Teacher Communication 3 s.h.
- 7U:185 Introduction to Consulting in Education 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.

**Administration and Social Agencies**

Eleven semester hours from these:
- 7C:144 Conflict and Violence in Families 3 s.h.
- 7D:285 School and Community Relationships 3 s.h.
- 7F:154 Education, Race, and Ethnicity 2-3 s.h.
- 7F:205 Research Process and Design 3 s.h.
- 7H:171 The Community College 2-3 s.h.
- 7P:50 Cross Cultural Psychology 3 s.h.
- 7S:186 Curriculum Foundations 2-3 s.h.
- 7W:120 Introduction to Instructional Design 3 s.h.
- 42:129 Substance Use and Abuse 2 s.h.
- 42:143 Social Welfare Policy and Practice 3 s.h.
- 42:196 Family Violence 2-3 s.h.
- 42:220 Family Law 3 s.h.
- 42:252 Family Policy: Domestic and International 3 s.h.
- 42:262 Social Policy and Integrated Practice: Domestic and International 3 s.h.
- 131:180 Women and the Law 3 s.h.

**Children with Diverse Abilities**

Eleven semester hours from these:
- 7U:100 Mainstreaming the Exceptional Learner 3 s.h.
- 7U:130 Exceptional Persons 3 s.h.
- 7U:132 Introduction to Behavioral Disorders 3 s.h.
- 7U:135 Mental Retardation 3 s.h.

**Family Support**

Eleven semester hours from these:
- 7C:112 Human Sexuality 1-3 s.h.
- 7C:119 Family Issues in Giftedness 1 s.h.
- 7C:145 Marriage and Family Interaction 3 s.h.
- 7C:178 Microcounseling 1, 3 s.h.
- 7C:199 Counseling for Related Professions 3 s.h.
- 7E:114 Parent-Child Relationships 3 s.h.
- 7E:134 Parent-Teacher Communication 1-3 s.h.
- 7E:185 Introduction to Consulting in Education 2-3 s.h.
- 7P:136 Home/School/Community Partnerships 3 s.h.
- 28:130 Human Nutrition 3 s.h.
- 34:161 The American Family 3 s.h.

**Multicultural Issues**

Eleven semester hours from these:
- 7C:124 Ethnic and Cultural Issues and Giftedness 1 s.h.
- 7C:133 Culturally Different in Diverse Settings 3 s.h.
- 7E:195 Multicultural/Bilingual Concepts and Educational Systems 3 s.h.
- 7E:180 Human Relations for the Classroom Teacher 3 s.h.
- 35:119 Introduction to Bilingualism 3 s.h.
- 129:124 Black Culture and Experience 3 s.h.
- 149:100 Native American Studies 3 s.h.

**Psychology**

Eleven semester hours from these:
- 7P:206 Advanced Child Development 3 s.h.
- 31:103 Social and Personality Development 3 s.h.
- 31:105 Personality 3 s.h.
- 31:113 Language Processing 3 s.h.
- 31:14 Cognitive Development of Children 3 s.h.
- 31:118 Infant Development 3 s.h.
- 31:135 Principles of Behavioral Analysis 3 s.h.
- 31:166 Childhood Psychopathology 3 s.h.
- 31:170 Behavior Modification 3 s.h.
- 31:218 Cognitive Development 3 s.h.
- 31:219 Psychology of Language 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 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 teacher 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 nonthesis option 32; 24 semester hours must be taken in University of Iowa courses, with 8 semester hours completed on campus. Course work completed 10 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:101 Methods of Student Assessment 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 3 s.h.

Research and Curriculum

Both of these: 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:233 History and Foundations of Social Studies Education 3 s.h.  7E:234 Foundations of Mathematics Education 3 s.h.  7E:260 Supervision of Elementary School Language Arts 3 s.h.  7E:262 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.  7E:264 Early Literacy Development and Instruction 2-3 s.h. or 7E:265 Reading and Writing Across Intermediate Grades 3 s.h.  7E:267 Curriculum Development in Early Childhood (5-8 Years) 3 s.h. or 7E:268 Curriculum Development in Early Childhood (0-5 Years) 3 s.h.  7E:280 Supervision of Instruction and 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 0 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, based on the general field of elementary education, the second centering on the candidate’s area of specialization.

M.A. in Developmental Reading

This degree program prepares graduate students for positions as reading specialists in kindergarten and grades 1-12. The required course work develops the skills, knowledge, and competence needed for supervisory, curricular, and remedial teaching positions in reading. The program also builds a background in reading for students who want to specialize further in the area and eventually to teach and/or conduct research 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 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:171 Reading and Writing: Processes and Instruction 3 s.h.  7E:264 Early Literacy Development and Instruction 2-3 s.h.  7E:265 Reading and Writing Across Intermediate Grades 3 s.h.  7E:271 Advanced Reading Clinic Techniques 2-3 s.h.  7E:272 Advanced Reading Clinic Practicum 2-3 s.h.  7E:308 Seminar: Research and Current Issues (Reading) 3 s.h.  7S:194 Methods: High School Reading 2-3 s.h.

One of these: 7E:174 Supporting Differences in Reading and Writing Development 1-4 s.h.  7P:150 Introduction to Educational Measurement 3 s.h.  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.  7S:186 Curriculum Foundations 2-3 s.h.  7S:291 Secondary School Curriculum 2-3 s.h.  7D:383 Supervision and Evaluation 3 s.h.  7E:280 Supervision of Instruction and Staff Development 2-3 s.h.  7E:365 Reading Clinic: Supervision 3 s.h.

Thesis (if relevant) – one of these: 7E:393 M.A. Thesis in Early Childhood and Elementary Education arr.  7S:393 Master’s Degree Thesis 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 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 the 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 in 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 3-hour exams: one in elementary education and one in each of the two 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, 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.

M.A. in Art Education

The Master of Arts program is administered by 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 be a paper 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 concurrent with work for the degree. Candidates must meet Graduate College requirements for admission.

REQUIREMENTS

M.A. candidates must complete the following:

1. 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
2. Art education seminars (8 s.h.): the course 7S:367 Seminar: Current Issues in Art Education
3. An additional 12 semester hours: to be specified after the student begins the program

A written and/or oral examination in art education is required (students who elect a studio thesis must pass M.A. clearance in the School of Art and Art History)

COMPREHENSIVE EXAMINATIONS

A written and/or oral examination in art education is required (students may elect a three-hour examination or a one-week research question).

Ph.D. in Art Education

The doctoral 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 grade-point average of at least 2.75. 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

Students must complete 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
Students must successfully complete 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.

Students take 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.

M.A. 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

Total of 19-20 semester hours, as follows:

<table>
<thead>
<tr>
<th>Course Listing</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7F:117 Philosophies of Education (or equivalent)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7S:186 Curriculum Foundations</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7P:150 Introduction to Educational Measurement</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>or 7P:255 Construction and Use of Evaluation Instruments</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or 7P:257 Educational Measurement and Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:300 Design and Organization of Curriculum</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7S:281 Junior High School and Middle School Curriculum</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7S:291 Secondary School Curriculum</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Research Tool

Selected in consultation with the adviser, typically 7P:143 Introduction to Statistical Methods (3 s.h.)

Cognates

Total of 4-6 semester hours in a subject field such as English

Electives

Total of 4-6 semester hours selected in consultation with adviser

Thesis

For students electing a thesis program, 7S:393 Master’s Degree Thesis (2-4 s.h.)

COMPREHENSIVE EXAMINATION

Two 3-hour comprehensive examinations are required: 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 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 10 or more years before the final examination are evaluated by the major department to determine how much credit may be allowed. Evaluation of old course work is applied in each area with the approval of the adviser. Courses successfully completed 10 or more years before the final examination are evaluated by the major department to determine how much credit may be allowed. Evaluation of old course work is applied in each area with the approval of the adviser.

The program culminates with successful completion of the research project a 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. The following courses are required.

<table>
<thead>
<tr>
<th>Course Listing</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E/7S:186 Curriculum Foundations</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:300 Design and Organization of Curriculum</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:304 Seminar: Current Issues and Research in Elementary Education</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>7E/7S/7U:395 Educational Specialist Research (required research project)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>7P:150 Introduction to Educational Measurement (or appropriate substitute)</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>or 7P:165 Introduction to Program Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E/7S/7U:392 Field Service Project in Secondary Education Internship (practicum; can be waived based on prior experience)</td>
<td>arr.</td>
</tr>
</tbody>
</table>

Additional hours should be chosen from the following courses or from others approved by the adviser.

<table>
<thead>
<tr>
<th>Course Listing</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7S:281 Junior High School and Middle School Curriculum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7S:291 Secondary School Curriculum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7S:391 Problems of Curriculum Planning</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:383 Supervision and Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or 7E:280/7S:285 Supervision of Instruction and Staff Development</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

Sample Methodological Areas

Students must earn at least 18 semester hours in courses they choose in consultation with their adviser, as follows.

Elementary education: 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: course work in a broad area, such as English language arts with a Pre-K-3, 7-12, or Pre-K-12 emphasis, or in a specific area, such as communication, developmental reading, literature, or writing with a Pre-K-3, 7-12, or Pre-K-12 emphasis

Mathematics: course work in K-12 graduate level mathematics education; selection must include 7E/7S:235 Current Issues in Mathematics Education

Social studies: courses in K-12 social studies and instructional design or educational measurement

Special education: course work in special education chosen to match the particular special education areas to the student’s goals

Sample Supporting Cognate Areas

For each of these areas, students choose appropriate course work in consultation with their adviser.

Broaden, deepen, or extend methodological area: 14 semester hours to broaden, deepen, or extend the methodological area
Second methodological area: 14 semester hours in a second methodological area

Administration: courses in personnel, financing of public education, leadership theory, and legal aspects of school administration

Instructional design: courses in the psychological bases of instructional design, instructional technology, designing instructional materials, and computer applications to instruction

Gifted education: course work in the education of gifted students, chosen to match the student's goals

Course work in a related field outside the College of Education: 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

Total of 36-42 semester hours, as follows:

- 7E:300 Design and Organization of Curriculum 3 s.h.
- 7E:304 Seminar: Current Issues and Research in Elementary Education 4 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.
- 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.
- or 7P:255 Construction and Use of Evaluation Instruments 3 s.h.
- or 7P:257 Educational Measurement and Evaluation 3 s.h.
- 7S:293 Individual Instruction in Secondary Education (Practicum) 2-3 s.h.

Electives

Total of 6-8 semester hours, chosen in consultation with adviser; recommended electives include the following:

- 7D:297 Administrative Leadership Theory 3 s.h.
- 7E:171 Reading and Writing: Processes and Instruction 3 s.h.
- 7F:117 Philosophies of Education 2 s.h.
- 7F:130 Educational Sociology 2 s.h.
- 7P:131 Educational Psychology 3 s.h.
- 7U:130 Exceptional Persons 3 s.h.
- 7W:120 Introduction to Instructional Design 3 s.h.

Cognates

All doctoral candidates are required to complete at least 8 semester hours of cognate work in areas such as sociology, psychology, or political science.

Thesis

7S:493 Ph.D. Thesis 10-18 s.h.

COMPREHENSIVE EXAMINATION

Candidates take three 3-hour comprehensive examinations, one in secondary school curriculum and two in 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.

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 courses. 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 or the equivalent, 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:15/8P:405 M.A. Seminar: English Education
  - 8P:182 Language and Learning to Adolescents 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 19th- or 20th-century British literature
- A course in writing (in addition to 8W:141)
- A course in oral communication

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 theoretic 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 of 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 background.
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 examination 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 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 from these:

- 7F:180 Issues in Foreign Language Education
- 7S:200 Fundamentals of Second Language Assessment
- 7S:202 Second Language Program Management
- 7W:120 Introduction to Instructional Design
- 9:235 Introduction to Second Language Acquisition Research
- 13:123 Topics in Foreign Language Instructional Technology

A two-part comprehensive examination is required. One part covers issues in foreign language education related to theory and practice, the other covers knowledge of and proficiency in the language and/or literature of the 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 foreign language course work. 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.

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

Students take a minimum of 10 semester hours of course work in mathematics approved by the adviser.
They also take 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 
chosen 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 3 s.h.
7E/7S:335 Seminar: Mathematics 
Education 2-3 s.h.

Students choose a minimum of two courses 
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 chosen in 
consultation with a faculty member from the 
cognate area.

In addition, students must complete a sufficient 
number of electives in mathematics and 
education, chosen with the approval of the 
adviser, to complete 32 semester hours of 
credit.

There are 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

This program prepares licensed/certified 
teachers with advanced specialization in 
mathematics and mathematics education. It is 
administered by the Department of Mathematics 
in the College of Liberal Arts. 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.
22M:120 Abstract Algebra I 3 s.h.
22M:121 Abstract Algebra II 3 s.h.
22M:132 General Topology 3 s.h.

Applied mathematics core:
22M:142 Intermediate Differential 
Equations 3 s.h.
22M:144 Introduction to Partial 
Differential Equations I 2-3 s.h.
22M:170 Numerical Analysis: Nonlinear 
Approximations and Approximation Theory 3 s.h.
22M:171 Numerical Analysis: 
Differential Equations and Linear 
Algebra 3 s.h.
22M:174 Optimization Techniques 3 s.h.

Two courses in mathematics education
Students take a comprehensive examination of 
six hours over the required courses in either 
pure mathematics or applied mathematics, and 
education. The examination assesses the 
candidate’s knowledge of mathematics and of 
the relevance of specific concepts relating to 
teaching secondary school mathematics.

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 10 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 circumstances, a 
current teaching license/certificate and at least 
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 
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 6 
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 
mastery 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 of coursework in 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 cumulative grade-point average of 
3.00 or higher on all graduate work in 
mathematics, all University of Iowa graduate 
work in mathematics, all graduate work, and all 
University of Iowa graduate work.

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.

Students also complete a dissertation on a 
research problem in mathematics education. A 
prospectus of the proposed research must be 
presented to the dissertation committee before 
the candidate undertakes the study. Upon 
completion of the dissertation, the candidate 
defends the dissertation in an oral examination.

M.A. in Music Education

The 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 the College of Liberal Arts, 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 
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 
states in the Graduate College section of the 
Catalog.

Course requirements are as follows.

General
25:321 Introduction to Graduate Study 
in Music 2 s.h.

Theory
25:240 Analytical Techniques 3 s.h.
25:145, 25:147-152 Elective 3 s.h.

Specific hour and course requirements in the 
theory area are determined by scores on the 
advisory examinations.
History and Literature
25:301-302 Advanced History and Literature of Music I-II

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 choose course(s) from music history electives. For specific courses, see “School of Music” in the College of Liberal Arts section of the Catalog.

Education
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.
7S:244 Individual Projects in Music Education 1 s.h.

Electives to be chosen in consultation with the adviser (may include thesis) 7-12 s.h.

Ensemble
Students in residence are required to participate in a major ensemble for at least two semesters (total of 2 semester hours).

Elective Credit
The amount of elective credit applicable toward the M.A. degree depends on scores earned on the music advisory examinations and the amount of credit earned in music education elective courses.

MASTERS 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 supervisors, 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 50th 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 at least two years of successful music teaching experience.

In addition, the music education faculty appraises teaching success, academic potential, and writing ability before qualifications for admission are fully determined.

The program is administered by the School of Music, in the College of Liberal Arts, 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 Analytical Techniques 3 s.h.

Music History and Literature
*25:301-302 Advanced History and Literature of Music I-II 6 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) 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 in music education 2-3 s.h.
Electives in specialization area 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

Choosing Electives
Students choose 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.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.

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.
7F: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.

All of the following science education courses are taken in the following sequence (7S:153 and 7S:189 are taken concurrently; 7S:187, 7S:190, 7S:191, and 7S: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 III: Middle/Junior High School 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.
M.S. 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.

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 Core
- 97:128 Meaning of Science 2 s.h.
- 97:130 Science in Historical Perspective 2 s.h.

Two of these:
- 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.
- 97:107 Textile Science 3 s.h.
- 97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Science electives 8 s.h.

Ed.S. in Science Education
The Ed.S. in science education is an intermediate degree between the master’s and the Ph.D. degree. It is recommended for state, regional, or local science supervisors as well as for instructors in community colleges and small four-year liberal arts colleges.

The program is administered by the College of Education.

ADMISSION
Candidates must have a 2.70 grade-point average on all undergraduate and graduate work undertaken prior to application for admission. Candidates are expected to have the equivalent of an undergraduate major in one of the sciences or science education.

REQUIREMENTS
Ed.S. students complete a minimum of 60 semester hours of course work, which must include the courses listed below; courses taken toward the requirements for a master’s degree may be applied to this total.

Science Education
- 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 each semester 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 “Special Project,” below) 4 s.h.

Science Specialization
Total of 24 semester hours in 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

Corroborative Studies
An integrated group of supporting courses, totaling 8 semester hours, selected from a limited number of areas such as education, applied science, science, and history/philosophy of science, in consultation with the adviser

Special Project
A special research or curriculum development project is required, resulting in a written report suitable for publication. Four semester hours of credit are assigned for this research.

COMPREHENSIVE EXAMINATION
Students take a comprehensive examination that consists of three parts: one dealing with science education, another with an area of science, and a third with the corroborative studies area.

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. Applicants usually 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 before making the application. All students must have completed an M.S. thesis or similar research suitable for publication.

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:

Science Education
- 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 each semester 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 “Special Project,” below) 4 s.h.

Science Specialization
Total of 24 semester hours in 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

Corroborative Studies
An integrated group of supporting courses, totaling 8 semester hours, selected from a limited number of areas such as education, applied science, science, and history/philosophy of science, in consultation with the adviser

Special Project
A special research or curriculum development project is required, resulting in a written report suitable for publication. Four semester hours of credit are assigned for this research.

COMPREHENSIVE EXAMINATION
Students take a comprehensive examination that consists of three parts: one dealing with science education, another with an area of science, and a third with the corroborative studies area.
All students are expected to spend a full year in residency actively involved with course work and at least one internship. Candidates complete a minimum of 10 semester hours of dissertation credit (7E/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 education, 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 education, history, social science, or related areas for classroom teachers or others interested in acquiring greater competence in instruction and 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 education, history, or one of the social sciences from an accredited institution; a 3.00 cumulative grade-point average; a 3.00 grade-point average in history and/or social science courses; preferred composite Graduate Record Examination (GRE) General Test score of 1000 on the verbal and quantitative tests; 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 distributed among the three fields selected for concentration.

If the thesis option is selected, the student completes a research or investigative problem in social studies education, 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.

PROGRAM B REQUIREMENTS

Program B students must complete a total of 38-48 semester hours. 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 3 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:277 Seminar: Social Studies Education 3 s.h.
7U:100 Mainstreaming the Exceptional Learner 3 s.h.
7W:120 Introduction to Instructional Design 3 s.h.

Subject area specialization courses: A minimum of 15 semester hours of course work in history or a social science is required, 9 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.

Students may take 5 semester hours of course work in a second area of history or in another social science. The fields should be selected in consultation with the adviser.

Note: The state of Iowa requires that students certified in social studies must have a teaching major of 30 semester hours and two endorsement areas of 15 semester hours each; or 30 semester hours in history (15 in American history and 15 in non-U.S. history) and only one additional endorsement area of 15 semester hours. Endorsement areas include anthropology, economics, geography, psychology, sociology, American history, and world history.

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 Studies 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 in social studies education.

ADMISSION

Applicants must have a bachelor’s degree in history, the social sciences, or education, and a master’s degree in history, the social sciences, or education. At least two years teaching experience is strongly preferred. Applicants must satisfy the requirements for admission to a doctoral program in the Graduate College and have a grade-point average of at least 3.00. A minimum Graduate Record Examination (GRE) General Test score of 1200 (composite of verbal and quantitative) is preferred. Applicants who did not write a thesis as part of their M.A. must submit seminar papers or field research as equivalents. An interview is required prior to regular admission.

REQUIREMENTS

Students must complete a minimum of 90 semester hours of coursework or dissertation credit beyond the bachelor’s degree, not including tool requirements. The 90 semester hours must be distributed among the 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. Students must take 9 semester hours of required courses in social studies education, including 7E:233/7S:233 History and Foundations of Social Studies Education. In addition, a minimum of 9 semester hours of 7E:277/7S:277 Seminar: Social Studies Education must be completed with one or more of the faculty members in social studies education.

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 at least one faculty member from the liberal arts disciplines and one from social studies education. The remaining members (a minimum of five committee members is 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.

Special Education

The division offers a special education program with areas of emphasis in mild mental disabilities, learning disabilities, behavioral disorders, 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. Undergraduate students 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:
- 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);
- three current letters of recommendation; and
- evidence of experience and/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.

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.

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.

M.A. 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 with a master’s degree and special education certification may request admission for the purpose of obtaining an additional area of special education licensure/certification. Students admitted to the M.A. program receive licensure/certification in at least one area upon completing the 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;
- three current letters of recommendation; and
- an undergraduate grade-point average of at least 3.00 (or 3.00 on at least 12 semester hours of graduate course work).

An interview may be requested.

Special Education 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.
7P:131 Educational Psychology 3 s.h.
7F: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. 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 Supporting Differences in Reading and Writing Development.

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.
or
7U:249 Supported Employment and Transition Services for Persons with Severe Disabilities 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.

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 3 s.h.
7U:212 Characteristics and Programs: Persons with Autism 2 s.h.
7U:213 Interventions: Persons with Autism 2 s.h.
7U:252 Seminar: Behavioral Assessment and Evaluation 3 s.h.
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 Supporting Differences in Reading and Writing Development.

7U:206 Practicum with Exceptional Persons (Section 2 with 7U:252, or Section 3 with 7U:213) 3 s.h.

Additional requirements for grades K-6:

7U:202 Methods: Children with Behavioral Disorders 3 s.h.
7U:208 Supervised Teaching: Elementary Behavior Disordered 3 s.h.
Additional requirements for grades 7-12:
7U:121 Career Education and Transition 3 s.h.
or
7U:249 Supported Employment and Transition Services for Persons with Severe Disabilities 3 s.h.
7U:204 Methods: Adolescents with Behavioral Disorders 3 s.h.
7U:228 Supervised Teaching: Secondary Behavior Disordered 5 s.h.
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.
Mental disabilities (MD) core—required of all students:
7E:173 Teaching Elementary 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 Supporting Differences in Reading and Writing Development.

7U:135 Mental Retardation 3 s.h.
7U:209 Seminar: Graduate Supervised Teaching 1 s.h.
7U:240 Behavioral Principles 2 s.h.
7U:241 Methods: Persons with Moderate/Severe/Profound Mental Disabilities 3 s.h.

Additional requirements for grades K-6:
7U:214 Methods: Children with Mild Mental Retardation 3 s.h.
7U:220 Supervised Teaching: Elementary Mild Mental Disabilities 5 s.h.
7U:244 Supervised Teaching: Elementary Moderate Mental Disabilities 5 s.h.

Additional requirements for grades 7-12:
7S:194 Methods: High School Reading 2 s.h.
7U:121 Career Education and Transition 3 s.h.
or
7U:249 Supported Employment and Transition Services for Persons with Severe Disabilities 3 s.h.
7U:133 The Culturally Different in Diverse Settings 3 s.h.
7U:215 Methods: Adolescents with Mild Mental Retardation 3 s.h.
7U:221 Supervised Teaching: Secondary Mild Mental Disabilities 5 s.h.
7U:247 Supervised Teaching: Secondary Moderate Mental Disabilities 5 s.h.
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.
All of the following are required:
7U:117 Interdisciplinary Programming for Persons with Disabilities 3 s.h.
7U:135 Mental Retardation 3 s.h.
7U:138 Methods: Children with Physical Disabilities 3 s.h.
7U:139 Assessment and Programming for Persons with Physical Disabilities 3 s.h.
7U:191 Supervised Teaching with Physically Handicapped 5 s.h.
7U:248 Adaptations for Students with Multiple Disabilities 3 s.h.
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.

Mental Disabilities - Moderate/Severe/Profound, K-12
The M.A. requires at least 43 semester hours.
All of the following are required:
7U:117 Interdisciplinary Programming for Persons with Disabilities 3 s.h.
or
7U:249 Supported Employment and Transition Services for Persons with Severe Disabilities 3 s.h.
7U:135 Mental Retardation 3 s.h.
7U:209 Seminar: Graduate Supervised Teaching 1 s.h.
7U:240 Behavioral Principles 2 s.h.
7U:241-242 Methods: Persons with Moderate/Severe/Profound Mental Disabilities I-II 6 s.h.
7U:243 Issues: Teaching Persons with Moderate/Severe/Profound Disabilities 3 s.h.
7U:244 Supervised Teaching: Elementary Moderate Mental Disabilities 5 s.h.
or
7U:247 Supervised Teaching: Secondary Moderate Mental Disabilities 5 s.h.
7U:245 Supervised Teaching: Severe/Profound 5 s.h.
7U:248 Adaptations for Students with Multiple Disabilities 3 s.h.
Cardiopulmonary resuscitation course (no credit)
In addition the following are recommended.
7U:214 Methods: Children with Mild Mental Retardation 3 s.h.
7U:216 Methods: Resource Teaching 3 s.h.

Multicategorical Resource Teaching
The M.A. requires at least 38 semester hours.
Required core:
7U:117 Interdisciplinary Programming for Persons with Disabilities 3 s.h.
7U:209 Seminar: Graduate Supervised Teaching 1 s.h.
7U:216 Methods: Resource Teaching 3 s.h.
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.

Two of the following are required for licensure:
7U:131 Introduction to Learning Disabilities 3 s.h.
7U:132 Introduction to Behavioral Disorders 3 s.h.
7U:135 Mental Retardation 3 s.h.

Additional requirements for grades K-6:
7U:202 Methods: Children with Behavioral Disorders 3 s.h.
7U:222 Supervised Teaching: Elementary Multicategorical Resource Teaching Program 5 s.h.
Recommended for licensure, grades K-6:
7U:201 Methods: Children with Learning Disabilities 3 s.h.

Additional requirements for grades 7-12:
7U:121 Career Education and Transition 3 s.h.
or
7U:249 Supported Employment and Transition Services for Persons with Severe Disabilities 3 s.h.
7U:204 Methods: Adolescents with Behavioral Disorders 3 s.h.
7U:232 Supervised Teaching: Secondary Multicategorical Resource Teaching Program 5 s.h.
Recommended for licensure, grades 7-12:
7U:203 Methods: Adolescents with Learning Disabilities 3 s.h.

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.

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. See “Planning, Policy, and Leadership Studies” in this section of the Catalog.

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 within the application for admission to the Graduate College.

REQUIREMENTS

Option 1: Persons without an M.A. in special education must complete an M.A. degree and teaching endorsement program in special education congruent with the desired authorization, plus the three courses listed under “Option 2,” for a total of at least 38 semester hours.

Option 2: Persons with an M.A. in special education and an endorsement congruent with the desired authorization must complete the following three courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:300</td>
<td>Design and Organization of Curriculum</td>
</tr>
<tr>
<td>7P:263</td>
<td>Consultation Theory and Practice</td>
</tr>
<tr>
<td>7U:260</td>
<td>Special Education Consultation (offered infrequently)</td>
</tr>
</tbody>
</table>

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 and an area of interest outside of special education.

Admission requirements for the Ph.D. program include a master’s degree or equivalent in special education and at least 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 advisor. 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 Psychiatry 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 advisor 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.

Courses

Early Childhood and Elementary Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:100</td>
<td>Foundations of Education 3 s.h.</td>
</tr>
<tr>
<td>7E:101</td>
<td>Introduction to Education 3 s.h.</td>
</tr>
<tr>
<td>7E:103</td>
<td>Administration of Physical Education and Athletics 2-3 s.h.</td>
</tr>
<tr>
<td>7E:104</td>
<td>Remedial Methods in Speech and Hearing 2 s.h.</td>
</tr>
</tbody>
</table>

Facilities

Special facilities available to students in special education include the University Hospital School, for mentally and physically disabled, and the University Psychiatry 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 advisor 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.

Courses

Early Childhood and Elementary Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:100</td>
<td>Foundations of Education 3 s.h.</td>
</tr>
<tr>
<td>7E:101</td>
<td>Introduction to Education 3 s.h.</td>
</tr>
<tr>
<td>7E:103</td>
<td>Administration of Physical Education and Athletics 2-3 s.h.</td>
</tr>
<tr>
<td>7E:104</td>
<td>Remedial Methods in Speech and Hearing 2 s.h.</td>
</tr>
</tbody>
</table>

Facilities

Special facilities available to students in special education include the University Hospital School, for mentally and physically disabled, and the University Psychiatry 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 advisor 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.

Courses

Early Childhood and Elementary Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:100</td>
<td>Foundations of Education 3 s.h.</td>
</tr>
<tr>
<td>7E:101</td>
<td>Introduction to Education 3 s.h.</td>
</tr>
<tr>
<td>7E:103</td>
<td>Administration of Physical Education and Athletics 2-3 s.h.</td>
</tr>
<tr>
<td>7E:104</td>
<td>Remedial Methods in Speech and Hearing 2 s.h.</td>
</tr>
</tbody>
</table>

Facilities

Special facilities available to students in special education include the University Hospital School, for mentally and physically disabled, and the University Psychiatry 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 advisor 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.

Courses

Early Childhood and Elementary Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:100</td>
<td>Foundations of Education 3 s.h.</td>
</tr>
<tr>
<td>7E:101</td>
<td>Introduction to Education 3 s.h.</td>
</tr>
<tr>
<td>7E:103</td>
<td>Administration of Physical Education and Athletics 2-3 s.h.</td>
</tr>
<tr>
<td>7E:104</td>
<td>Remedial Methods in Speech and Hearing 2 s.h.</td>
</tr>
</tbody>
</table>
Admission to elementary TEP required. Corequisites: 7E:123, with varying age levels (infant/toddler, preprimary, primary).

Admission to elementary TEP required. Corequisites: 7E:123, language, and skills of oral and written communication. etc.), and to language development, concepts concerning oral, written, visual modes (creative dramatics, writing, film, etc.), and to language development, teaching units; approaches to personal self-expression through science content areas; scheduling done in related methods.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.

Methods of instruction for multicultural and bilingual settings in encouraging social and moral development of children; three programs; behavior management; cognitive approaches to techniques of preventing behavior problems in child care. Principals of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a experiences and implementing the work of Jean Piaget in their classroom Implications from the data; primarily for experienced teachers.
Education . Curriculum and Instruction

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 Rationality 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.
Topics 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 impact on school to schoolat elementary, secondary, college settings. Offered fall semesters Same as 7S:257.

7E:258 Science Education: Research Models and Conceptual Schemes 3 s.h.
Models of research design and major research efforts in science education; emphasis on current reports and reviews of current 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 explorations, skills, concept development experiences.

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 the principles that permit implementation of modern philosophies characterizing elementary school science education; primarily for experienced elementary teachers progressing toward graduate degrees.

7E:264 Early Literacy Development and Instruction 2-3 s.h.
Understanding of early reading experiences; relationship of reading to other communication areas; knowledge of instructional approaches, techniques, materials, assessment procedures; interrelationships of home and school experiences; identification of current and crucial issues and relevant research.

7E:265 Reading and Writing Across Intermediate Grades 3 s.h.
Reading with comprehension, provision for individual differences, research in reading, extension of skills taught in primary grades; for teachers, principals, supervisors.

7E:267 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:268 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 progress for severely disabled readers

7E:272 Advanced Reading Clinic Practicum 2-3 s.h.
Practice in selecting and using special instructional procedures; fitting clinical teaching techniques into a balanced developmental reading framework.

7E:273 Reading Recovery I 2-3 s.h.

7E:274 Reading Recovery II 2-3 s.h.
Trainings for teachers; tutoring of first grade children; effective moment-by-moment instructional decision making.

7E:275 Reading Recovery Assessment Program 2-3 s.h.
How to administer and analyze Marie Clay's Observation Survey; includes administration of the assessment to at least two first-grade children.

7E:277 Seminar: Social Studies Education 2 s.h.
Periodical literature, trends, curricular developments, research. For master's and doctoral candidates in social studies education. Same as 7S:277.

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.

7E:300 Design and Organization of Curriculum 3 s.h.
Major issues, modern selection, sequential arrangement, organization of content; relationship of time allotments to implementation; utilization of instructional equipment; appraisal procedures; staff participation in curriculum development.

7E:304 Seminar: Current Issues and Research in Elementary Education 4 s.h.
Major problems, research findings, current developments in elementary and secondary school instructional programs. Consent of instructor required.

7E: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.

7E:308 Seminar: Research and Current Issues in Art Education 3 s.h.
For a specific period of time; emphasis on literature reviews and research. Same as 5E:325.

7E:315 Seminar Mathematics Education 2 s.h.
Current research, research methodology, curriculum developments in mathematics education. Maybe repeated. Same as 7S:335.

7E:330 Science Education: Ph.D. Internship 2-3 s.h.
Same as 7S:335.

7E:356 Reading Clinic: Supervision 2-3 s.h.
Supervised experience in guiding and improving teaching performance in clinical practices. Consent of instructor required.

7E:366 Administering and Supervising K-12 Schools 1-2 s.h.
Theory and practice in coordinating K-12 science programs; science supervisory roles at state, regional, local levels are involved; two practicum projects required. Offered spring semesters and summer sessions. Same as 7S:234.

7E:356 Laboratory Practice in Supervision 2-3 s.h.
Individually planned practicum experiences in a variety of supervisory roles. Consent of instructor required.

7E:373 Field Service Project 2-3 s.h.
Individual field service project in a specific curricular area; for advanced students. May be repeated. Consent of instructor required.

7E:393 M.A. Thesis in Early Childhood and Elementary Education 2-3 s.h.
Consent of instructor required.

7E:395 Education Special Research in Early Childhood and Elementary Education 2-3 s.h.
Research resolving design, data analysis, writing of results. Consent of instructor required.

7E: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 7S:405.

7E:406 Research in Art Education 2-3 s.h.
Individual research under supervision; applicable to thesis preparation and to doctoral prospects development. May be repeated. Same as 1E:406, 7S:406.

7E:407 Research: Science Education 2 s.h.

7E:493 Ph.D. Thesis in Elementary and Secondary Education 2 s.h.
Consent of instructor required.

Secondary Education

7S:90 Introduction and Practicum: Art 2 s.h.
Experience observing and assisting art teachers and students in elementary or secondary schools; offered only one time per year.

7S:91 Introduction and Practicum: English and Speech 2 s.h.
Experience observing and assisting English or speech teachers and students in secondary schools; 12 hours per week in the school plus on-campus class meetings. Admission to TEP required.

7S:92 Introduction and Practicum: Foreign Language 3 s.h.
Experience observing and assisting foreign language teachers and students in elementary and/or secondary schools; four to six hours per week in the school plus campus class meetings. Admission to TEP required.

7S:93 Introduction and Practicum: Journalism 3 s.h.
Experience observing and assisting in secondary schools. Admission to TEP required.

7S:95 Introduction and Practicum: Mathematics 3 s.h.
Experience observing and assisting math teachers and students in elementary or secondary schools; six hours per week in the school plus on-campus class meetings. Admission to TEP required.

7S:96 Introduction and Practicum: Music 2 s.h.
Experience observing and assisting music teachers and students in elementary or secondary schools; six hours per week in the school plus on-campus class meetings. Admission to TEP required.

7S:99 Introduction and Practicum: Social Studies 2-3 s.h.
Experience observing and assisting social studies teachers and students in secondary schools; four to six hours per week in the school plus on-campus class meetings. 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 forensic programs; prepares students to direct competitive activities. Same as 7E:102.

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, 7S:103.

7S:105 Advanced Methods: Art 3 s.h.
Art education theory and methods at elementary and secondary levels; art curriculum, unit, and lesson planning; evaluation, motivation, instructional materials; observational techniques.

7S:112 Introduction to Musesology 3 s.h.
Introduction to history, philosophy, function, management of museums and related institutions; emphasis on American museums. GE: fine arts or humanities. Same as 24:102, 28:102, 97:115, 113:103.

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 7E:191.

7S:115 Methods: English 2 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 8P: 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:120 Methods: Teaching American Sign Language 3 s.h.

Methods of teaching sign communication; material development and analysis, lesson planning, writing of course objectives, evaluation methods.

7S:130 Workshops for Secondary School Journalism and Communication Teachers 1-2 s.h.

Teaching journalistic writing and editing, photography, design, typography, current technology, developing curriculums and advising student publications; for teachers responsible for journalism publication programs or classes. Same as 19:102.

7S:134 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: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, 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:138 Practicum: Band Instrument Care and Repair 1 s.h.


7S:139 Child and Adolescent Voice Production 2 s.h.

Principles, techniques of voice production and pedagogy. Same as 25:111.

7S:140 Band Methods and Materials 3 s.h.

High school and elementary school music 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 3 s.h.

Literature, methods, materials, organizational plans of general music courses in secondary schools; role of music in allied arts and humanities-related 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.

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 selection studied and implemented to develop a secure approach to choral art; students preparing to teach in the elementary or secondary schools must register under 7S:148. Prerequisite: 7S:147. Same as 25:110.

7S:149 Behavioral Research in Music 2-3 s.h.

Preparation for conducting 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. Experience participating 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.

Student development of a research-based rationale for teaching science; teaching strategies, self-evaluation, lesson design; students videotaped teaching in a ninth grade class.

7S:153 Science Methods III: Middle/High Junior High School Communication skills, self-evaluation, cognitive development, individualized instruction; generally, middle/junior high school issues.

7S:154 The Politics of Literacy 3 s.h.

Same as 7E:154, 8:173, 10:142.

7S:155 Methods and Practicum in School Health 3 s.h.

Methods, materials, instructional planning, management, practicum in school health programs. Prerequisite: 28:140. Same as 28:126.

7S: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, textbooks and references, periodicals 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 practices; 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, forecasting, decision making, planning, and academic areas.

7S:172 Thinking Skills 1 s.h.

Factors involved in teaching thinking skills as a total concept; the relationship of critical and creative thinking; review of published programs.

7S:178 Workshop in Teaching Communication and Forensics 2 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:180 Issues in Foreign Language Education 3 s.h.

Theoretical perspectives of pivotal research issues at the forefront of foreign language education; systems available to foreign language professionals for disseminating research.

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 or a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as 7E:383, 39:177.

7S:184 Reading in a Second Language 2 s.h.

Current theory/research/practice in second language reading field; role of textual features and the reader in reading comprehension.

7S: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, 7U:185.

7S:186 Curriculum Foundations 2-3 s.h.

Elementary and secondary background developments in curriculum, definitions, historical perspectives, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. 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.

Experience in developing course materials for classes offered through the Belin Center. Same as 7E:188, 7E:188, 7U:188.

7S:189 Elementary School Special Subject Area Teaching 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.

7S:191 Observation and Laboratory Practice in the Secondary School 3 s.h.

Student teaching 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 3 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:75.

7S:194 Methods: High School Reading 2-3 s.h.

Methods and materials used in teaching developmental reading in all junior and senior high school content areas; Offered fall semesters and spring sessions.

7S:196 Topics in Curriculum and Instruction 1 s.h.

Consent of instructor required. Same as 7E:196, 7P: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 interscholastic 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 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.

7S:201 Seminar: Current Topics in Music Education 1 s.h.

Major areas of professional and research interest. Maybe repeated.

7S:202 Second Language Program Management 3 s.h.

Preparation for supervising, administering foreign language programs at all levels; for prescolate language teachers, graduate students.

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.

Recent developments in school mathematics teaching methods and curriculum relevant to a selected issue; one to three weeks of intensive examination, experience. 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:233 History and Foundations of Social Studies Education 3 s.h.

Same as 7E:233.
7S:234 Foundations of Mathematics Education 2-3 s.h.
History of mathematics education in the United States; learning theory applied to teaching, learning mathematics; curriculum design; curriculum and achievement patterns in different countries; sex differences in achievement; research literature.
Same as 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:235, 224M:395.

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 computers 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 base for developing school music programs.

7S:241 Music Education Workshop 1 s.h.
Materials and innovative instructional procedures for teaching instrumental music in public schools and colleges. May be repeated. Same as 7E:240.

7S:244 Individual Projects in Music Education 1-2 s.h.
Projects of special concern to individual music teachers in the public schools.

7S:249 Research-Based Instruction in Science 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 Education 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 semesters and summer sessions.

7S:253 Recent Curriculum Developments in Science 1-3 s.h.
Review of national curriculum efforts for science schools, including materials, rationale, teaching strategies, offered 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; the position of science supervisor; restructuring of science education; current restructuring of science education; SS&C, STS constructivist paradigms used to explore strategies for diffusion.

7S:255 Science Education Research Models and Conceptual Schemes 3 s.h.
Same as 7E:255.

7S:258 Science Education Research Models and Conceptual Schemes 3 s.h.

7S:260 Restructuring Science Courses 2-3 s.h.
Constructivist learning model applied to existing science courses; emphasis on student centeredness. May be repeated.

7S:261 Leadership and Change in Science Education 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 of science education; emphasis on student centeredness; theoretical framework for restructuring SS&C, STS constructivist paradigms used to explore strategies for diffusion.

7S:263 Alternative Assessment in Science Education 2-3 s.h.
Alternative assessment, its range of applications to everyday pedagogical practice.

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 products of instructional process.

7S:277 Seminar: Social Studies Education arr.
Periodical literature, trends, curricular developments, research in various aspects of social studies education; for master's and doctoral candidates in social studies education. Same as 7E:277.

7S:279 Experimental Research in Music Education 3 s.h.
Design, performance, reporting of experimental research studies that illustrate methods of experimental control and statistical evaluation in music. Prerequisite: 7S:149.

7S:290 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 m junior high school and middle school subjects and area; current trends, curriculum planning; development of a model program, supervision of Instruction and Staff Development.

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 teacher education; research on staff development and bringing about change in education. Same as 7E:280.

7S:291 Secondary School Curriculum 2-3 s.h.
Theory and development of secondary school curriculum; analysis of components of curriculum; emphasis on practices and issues in various subject areas since 1965.

7S:293 Individual Instruction in Secondary Education arr.
Consent of instructor required.

7S:315 M.A. Seminar: English Education arr.
Significant developments in English education; primary and collateral readings. Consent of instructor required. Same as 8P:405.

7S:335 Seminar: Mathematics Education arr.
Analysis of current research, research methodology, curriculum developments in mathematics education; topics vary. For Ph.D. candidates. May be repeated. Same as 7E:335.

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:344 Special Workshops in Music 1 s.h.
Current topics in learning and teaching music in public schools and colleges. May be repeated.

7S:350 Seminar: Science Education 1-2 s.h.
Discussion of completed faculty and doctoral candidates' research, national issues, program features. Same as 7E:350.

7S:355 Science Education: Ph.D. Internship 2-3 s.h.
Same as 7E:355.

7S:356 Science Education Internship: Teacher Education Supervision and Administration arr.

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 conducting programs of curriculum review and improvement; techniques for developing curriculum materials; typically includes field experience, examination of current curriculum issues.

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:405 Ph.D. Seminar: Child Art and Art Education 2-3 s.h.
Analysis and evaluation of current concepts of child art and child development, perception, creativity, art education; historical development of theories of child art, child development, art education. Same as 7E:405.

7S:406 Research in Art Education arr.
Individual research under supervision, applicable to thesis preparation, doctoral prospectus development. May be repeated. Same as 1E:406, 7E:406.

7S:407 Research: Science Education arr.
Planning of individual research projects by M.S. and Ph.D. candidates.

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 8P: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. Doctoral student standing in music education or consent of instructor required.

Consent of instructor required.

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, definitions, 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. GE: cultural diversity. 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: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, 7S:136.

7U:137 Introduction to Educating Gifted Students 3 s.h.
History, 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 handicapping conditions and causes, and special considerations of each.

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 5 s.h.
Includes experience in developing course materials for classes offered through the Belin Center. Same as 7E:188, 7P:188, 7S:188.

7U:190 Interdisciplinary Leadership Curriculum 1-3 s.h.
Critical issues related to interdisciplinary delivery of services to persons with developmental disabilities; observation and participation in staffing and consultation; opportunity for related community experiences.

7U:191 Supervised Teaching with Physically Handicapped 3 s.h.
Consent of instructor required.

7U:196 Topics in Curriculum and Instruction 1 s.h.
Consent of instructor required. Same as 7E:196, 7S:196.

7U:199 Individual Instruction in Special Education: Undergraduate 1 s.h.
Specialized study of topics not included in other courses. Consent of instructor required.

7U:201 Methods: Children with Learning Disabilities 3 s.h.
Methods and materials appropriate for working with children who have various process and academic and cognitive disabilities. Prerequisites: 7U:131 and 7U:238.

7U:202 Methods: Children with Behavioral Disorders 3 s.h.
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 3 s.h.
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 3 s.h.
Practical skills for working with youth with behavioral disorders in school and community, affective and behavioral management, 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 arr.
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 Disability 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:208 Supervised Teaching Elementary Behavior Disorder 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. Corequisite: 7U:207 or 7U:208 or 7U:220 or 7U:222.

7U:210 Characteristics and Programs: Persons with Severe Behavioral Disorders 2-3 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 supports, assessment. Prerequisites: 7U:132, and 7U:238 or 7U:240 or consent of instructor.

7U:212 Characteristics and Programs: Persons with Autism 1-3 s.h.
Introduction to autism; definition, assessment, research information, communication skills, speech, language development of persons with autism. 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: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 programs. Prerequisites: 7U:130, 7U:238, and two of the following: 7U:132, 7U:235.

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 Disorder 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; for prospective directors of special education and school administrative personnel. Same as 7D:236.

7U:238 Assessment of Learning Difficulties 1-3 s.h.
Administration of individual educational assessment instruments and interpretation of test results. Prerequisite: 7U:135, 7U:235, and 7U:240 or consent of instructor.

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/destructive 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-based curriculum development; meaningful assessment; integration in regular schools and communities; domestic and community functioning; leisure/recreation, vocational skills; functional academics. Prerequisites: 7U:130, 7U:135, 7U:235, and 7U:240 or consent of instructor.

7U:242 Methods: Persons with Moderate/Severe/Profound Mental Disabilities II 3 s.h.
Systematic instruction and 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.

7U:245 Supervised Teaching Secondary/Profound 3, 5 s.h.
Student teaching in special education classroom serving students who are severely/profoundly disabled.

7U:247 Supervised Teaching Secondary Moderate Mental Disabilities 5, 10 s.h.
Student teaching in a special education classroom.

7U:248 Adaptations for Students with Multiple Disabilities 3 s.h.
Enhancing participation of persons with multiple disabilities; partial participation, individualized adaptations; positioning, handling techniques; integration of therapy with educational programs. Prerequisite: 7U:130 or consent of instructor.

7U:249 Supported Employment and Transition Services for Persons with Severe Disabilities 3 s.h.
Making the transition into supported employment; transition planning strategies, person-centered career planning, job development strategies, building job skills; processes and procedures for professionals. Prerequisite: 7U:130 or consent of instructor.
PLANNING, POLICY, AND LEADERSHIP STUDIES

Chair: David B. Bills
Program coordinator, educational administration: Walter J. Foley
Program coordinator, higher education: Chet S. Rzona
Program coordinator, social foundations of education: David B. Bills
Professors: Larry D. Bartlett, George A. Chambers, Walter J. Foley, Leila B. Helms, Alan B. Henkin, H. Bradley Sagen
Professors emeriti: Arthur C. Burman, Jerry N. Kuhn, Bradley M. Loomer
Associate professors: David B. Bills, Robert E. Engel, Scott F. McNabb, Ray A. Muston, Chet S. Rzona, Carolyn L. Wiant, Sara C. Wolfson
Associate professor emeritus: William E. Duffy
Assistant professor: Christine L. McCarthy
Assistant professor emeritus: John B. Cox
Adjunct assistant professors: Stephen Arum, Joyce A. Brandt, Gerald W. Dallam, Glen A. Easterday, Martha Milani, James E. Mitchell, Dorothy M. Persson, Von V. Pitman Jr.
Adjunct assistant professors emeriti: Wendell C. Boersma, Charles M. Mason
Graduate degrees: M.A., Ed.S., Ph.D.
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 this diversity of purpose.

Iowa Community College Licensure

Instructor

To qualify for professional licensure with authorization to teach in an arts and sciences field of an Iowa community college, 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.

Undergraduate Program
Higher Education – Major in Health Occupations Education

The health occupations education major prepares teachers for employment at the community college level in preparatory health occupations education programs. In addition to basic skill and General Education Program requirements of the College of Liberal Arts, students complete courses in professional education and in the health occupations education specialty field and/or supporting areas.

Students who apply to this program must hold current certification, licensure, or registry appropriate in the area of health occupations education in which they wish to teach (e.g., dental or medical office assistance, or respiratory therapy). The health occupations education major is built on the health occupations credential and includes work in professional education and liberal studies appropriate to teachers who want to earn a baccalaureate degree.

Applicants to this program must satisfy criteria for admission to the teacher education program (TEP) of the College of Education.

Program requirements are as follows.

PROFESSIONAL EDUCATION COMPONENT

7H:112 Teaching of Adults 3 s.h.
7H:117 Foundations of Vocational Education 2 s.h.
7H:190 Introduction to Post-Secondary Education 2 s.h.
7H:191 Community College Teaching Internship 6-12 s.h.
7H:192 Curriculum Development: Application to Community Colleges 3 s.h.
7H:193 Evaluation: Application to Community Colleges 2-3 s.h.
7P:75 Educational Psychology and Measurement 3 s.h.
7W:91 Audiosvisual Equipment for Instruction 1 s.h.
7W:92 Introduction to Microcomputing for Teachers 1 s.h.
Appropriate course in social foundations 2-3 s.h.
Additional specialty course work in health occupations education 10 s.h.

Course work in the health occupations education specialty and supporting field should be planned carefully in consultation with the adviser.

Students may take workshops or courses offered by specific health colleges, or they may choose electives such as development of audiovisual aids or computers in education, in keeping with their educational goals.

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 joint programs 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 that includes the following core requirements.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</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>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7D:258</td>
<td>Contemporary Management Strategies for the Elementary Principal 3 s.h.</td>
<td>arr.</td>
</tr>
<tr>
<td>7D:401</td>
<td>Field Service Project in Elementary Administration</td>
<td>arr.</td>
</tr>
<tr>
<td>Electives selected with approval of adviser</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Secondary Level

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7D:260</td>
<td>Contemporary Management Strategies for the Secondary Principal 3 s.h.</td>
<td>arr.</td>
</tr>
<tr>
<td>7D:402</td>
<td>Field Service Project in Secondary Administration</td>
<td>arr.</td>
</tr>
<tr>
<td>Electives selected with approval of adviser</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Central Staff Administration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</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>
<tr>
<td>7P:143</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives selected with approval of adviser</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMPREHENSIVE EXAMINATIONS
The M.A. comprehensive examination consists of two 3-hour examinations: one in educational administration and one in a specialized area in either educational administration or a related field. Students must be registered in the Graduate College during the semester in which they take the comprehensive examination if they plan to graduate that semester.

Specialist in Education
The Ed.S. program prepares candidates for administrative appointments in area education agencies, state departments of education, and the U.S. Office of Education. It also assists school administrators in upgrading their administrative skills to the level of superintendent of schools. Students seeking licensure/certification plan a program approved by an adviser to meet state of Iowa licensure/certification requirements.

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7D:291</td>
<td>Administration of Educational Programs and Personnel</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:294</td>
<td>Politics and Economics of the Governance and Financing of Public Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:297</td>
<td>Administrative Leadership Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:299</td>
<td>Legal Aspects of School Administration</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

PROGRAM EMPHASIS
Students must complete the balance of their minimum required semester hours (minus electives) in one of the following emphasis areas. Courses specifically listed in each area of specialization are the required courses.

Elementary School Administration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7C:222</td>
<td>Interventions for Primary Prevention in Schools</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:262</td>
<td>School Organization Patterns</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:304</td>
<td>Seminar, Supervision and Administration</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7P:150</td>
<td>Introduction to Educational Measurement</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Secondary School Administration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7C:222</td>
<td>Interventions for Primary Prevention in Schools</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:303</td>
<td>Seminar: Administration and Coordination of Curriculum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7P:150</td>
<td>Introduction to Educational Measurement</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

General School Administration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7D:205</td>
<td>Collective Bargaining in Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:295</td>
<td>Financial Management of Local School Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:375</td>
<td>Educational Administration Practicum</td>
<td>arr.</td>
</tr>
<tr>
<td>7P:143</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

ELECTIVES
Students choose electives completing the 62-semester-hour requirement for the Ed.S. degree. They may choose electives for specialization in fields such as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information systems.

RESEARCH
All candidates for the Ed.S. degree must complete a formal research paper (4 semester hours) that deals with a specific problem in school administration or instruction.
COMPREHENSIVE EXAMINATION
The comprehensive examination for the Ed.S. degree consists of two 3-hour examinations: one in educational administration and the other in a specialized area in either educational administration or a related field. Students must be registered in the Graduate College during the semester in which they take the comprehensive examination if they plan to graduate that semester.

Ed.S. 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 analysis 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 program admits a maximum of 10 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 program 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 governance and the financing of public education, evaluation of administrative leadership theories, and options in research methodology and quantitative analysis.

Each core course carries 3 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 want 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 study sequence.

Any of the areas of specialization open to doctoral students in educational administration are open to other doctoral students who meet the necessary prerequisites. 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 must 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 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 (minimum of 9 semester hours on campus, excluding thesis credit) to fulfill the residency requirement. The following sample Ph.D. program requirements include 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 3 s.h.
7D:294 Politics and Economics of the Governance and Financing of Public Education 3 s.h.
7D:297 Administrative Leadership Theory 3 s.h.
7D:370 Research Methodology and Quantitative Analysis 3 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 chosen to permit specialization; typically two or more doctoral seminars and 12 or more semester hours in a special area

Social Foundations of Education
Social foundations of education is an interdisciplinary program designed to enhance students’ ability to analyze the influence of social, historical, and philosophical forces on the formal educational enterprise. Major areas of specialization are comparative/international education, history of education, philosophy of education, policy studies, and sociology of education.

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 in social foundations, which should include at least two courses each in three of the five areas of specialization. The remainder of the required 32 semester hours of course work must be in a 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 examining committee may elect to hold an oral examination after the exam.

Doctor of Philosophy
The Ph.D. program requires a minimum of 90 semester hours. Students are required to take a minimum of 24 semester hours in social foundations, which must include at least 12 semester hours in the major area of specialization and a minimum of 6 semester hours from each of two additional areas. In addition, students must take at least 9 semester hours in related College of Education courses in a concentration area, such as educational administration, educational psychology, measurement and evaluation, or higher education.

Approximately one-third to one-half (30-45 semester hours) of each student’s program is devoted to in-depth course work from at least one other University of Iowa program, such as history, philosophy, political science, or sociology. These sequences are individually planned by the student with the aid of his or her adviser and suggestions from the appropriate department(s).

Five research courses are required. They are chosen in accordance with the individual candidate’s research interests and program. One of these must be in quantitative methodologies (e.g., graduate-level statistics, microcomputing, demographic analysis), and one must be in qualitative analysis (e.g., philosophy of science, philosophy of social science, historiography, qualitative or case study methodologies, foreign language). The third course may be either quantitative or qualitative.

In addition, all students are required to successfully complete 7F:160 Critical Thinking and 7F:205 Research Process and Design. Dissertation research is usually taken for 12-15 semester hours of credit.

COMPREHENSIVE EXAMINATION
Doctoral students must satisfactorily complete an extensive comprehensive examination, including three 3-hour examinations: the first is in the student’s major area of study, the second is in the student’s other two areas of concentration within social foundations, and the third is in the student’s outside area of study and is prepared by faculty outside the social foundations program. These exams are followed by an oral examination.

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. Students and their advisers determine when the prospectus is complete.

Students must accumulate 12 semester hours of dissertation research credit. The doctoral program culminates with a final oral defense of the dissertation. Students must be registered at The University of Iowa during the session in which they graduate.

RESIDENCY
Each doctoral candidate must successfully complete two semesters (a minimum of 9 semester hours per semester, excluding thesis credit) on campus to fulfill the residency requirement.

Higher Education
Postsecondary and continuing education in the United States represents an extensive and complex set of phenomena. The academic programs in higher education encompass that complexity. Degrees are offered at all levels, with emphasis on both research and practice. Preparation for either teaching or administration is available. The teaching, research, and service activities of the faculty and the work of the graduates of the several degree programs illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.

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 appropriate 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.

Complete applications should be submitted well in advance of the intended semester of admission. Contact the department for admission dates.

REQUIREMENTS
The M.A. program requires a minimum of 32 semester hours. Students must take six hours of written examinations based on the core, concentration, and specialization, according to the plan of study developed individually for each student.

Areas of concentration in which examinations may be written are administrative practices, academic practices, continuing education practices, and policy studies. Students majoring in another field who want to complete a related field in higher education and to be eligible to write a related-field examination should consult with a higher education adviser early in their studies. Plans of study are developed individually.

Specialist in Education
The Ed.S. program provides advanced graduate study in higher education in the areas of administration, academic planning and program development (including an emphasis on academic administration), community college administration, and continuing education for students usually not planning to continue for the doctorate. The specialist degree also may be awarded upon completion of a joint program that consists of a minimum of 60 semester hours of graduate work in higher education and an academic field, or upon completion of a higher education sequence following a master’s degree program.

ADMISSION
Applicants for admission must have satisfied the general requirements for admission to the Graduate College. Candidates are selected on the basis of grade-point average, GRE General Test scores, and promise for professional growth. Transcripts, GRE scores, three letters of recommendation, and a statement of educational goals are required.

Complete applications should be submitted well in advance of the intended semester of admission. Contact the department for admission dates.
REQUIREMENTS
Requirements for the Ed.S. major in higher education are as follows.

Students must earn at least 18 semester hours in professional education and related fields. This work must include a structured internship determined in consultation with the adviser to be appropriate for one of the following five areas: administration, academic planning and program development (including an emphasis on academic administration), community college administration, continuing education, or community college teaching (joint program only).

In addition, the program of study must include at least 28 semester hours in the student’s specialization area, determined in consultation with the adviser, and 10 semester hours of electives, also approved by the adviser.

Students also must earn 4 semester hours in research conducted under 7H:395 Educational Specialist Research in Higher Education. Two 3-hour comprehensive examinations are required: 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. These exams are 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 (JOINT 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 four areas of concentration: general administration, academic planning and program development (including an emphasis on academic administration), community college administration, and policy studies.

ADMISSION
Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates are 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. Ph.D. students are considered for admission once a year. Complete application materials must be received by December 1 for the following summer session or 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 preliminary research proposal 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

7D:110 Administrative and Policy Issues in Gifted Education
Policy, administrative, evaluation issues in developing and maintaining gifted programs in a school setting; participants develop gifted program and policies for a school or school executives and coordinators of gifted programs. 1 s.h.

7D:201 Foundations of School Administration
Organization and administration of American public education; principles and concepts of organization and administration; socioeconomic, political, and historical factors relating to education and school administration. 3 s.h.

7D:205 Collective Bargaining in Education
Current status of public sector bargaining in the U.S. collective bargaining system through analysis of historical, legal, institutional perspectives; emphasis on union and management structures. 3 s.h.

7D:212 Individualized Instruction, Personnel
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of personnel. Consent of adviser and instructor required. 1-3 s.h.

7D:213 Individualized Instruction, Finance
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of finance. Consent of adviser and instructor required. 1-3 s.h.

7D:214 Individualized Instruction, Law
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of law. Consent of adviser and instructor required. 1-3 s.h.

7D:216 Individualized Instruction, Elementary Administration
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of elementary administration. Consent of adviser and instructor required. 1-3 s.h.

7D:217 Individualized Instruction, Secondary Administration
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of secondary administration. Consent of adviser and instructor required. 1-3 s.h.

7D:218 Individualized Instruction, Curriculum
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of curriculum. Consent of adviser and instructor required. 1-3 s.h.

7D:219 Individualized Instruction, Supervision
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of supervision. Consent of adviser and instructor required. 1-3 s.h.

7D:220 Individualized Instruction, Middle School
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of the middle school. Consent of adviser and instructor required. 1-3 s.h.

7D:236 Administration of Students with Special Needs
Foundation for and skill practice in tasks performed by directors of special education and others administering to needs of special education students, and economically and socially deprived students; for prospective school administrative personnel. Same as 7U:256. 3 s.h.

7D:258 Contemporary Management Strategies for the Elementary Principal
Strategies for qualitative elements relating to educational program, curriculum, learning, and instruction; identification of qualitative assessment procedures as well as measurement approaches; communication techniques. Prerequisite: 7D:261. 3 s.h.

7D:260 Contemporary Management Strategies for the Secondary Principal
Strategies for qualitative elements relating to educational program, curriculum, learning, instruction; employment of qualitative approaches; adolescent developmental studies and psychology. Prerequisite: 7D:261. 3 s.h.

7D:261 The Principalship
Organization, supervision, administration of schools; curriculum leadership, instructional practice, personnel relations; role analysis, school-community relationships, communication channels. 3 s.h.

7D:262 School Organization Patterns
Organizational approaches analyzed with focus on emerging patterns, new trends in instructional procedures. 3 s.h.

7D:285 School and Community Relationships
Community analysis, politics and education, power groups and influences, school issues and public responses, public relations strategies. 3 s.h.

7D:291 Administration of Educational Programs and Personnel
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. 3 s.h.

7D:293 Individual Instruction in Educational Administration
Readings, special projects, and/or studies that reflect joint instructor/student interest. Consent of instructor required. 1-3 s.h.

7D:294 Politics and Economics of Financing Public Education
Theories, models, research relating to educational governance and finance considered with issues in policy development, analysis, appraisal, planning, their interrelation in American public education. 3 s.h.
TD: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.

TD:297 Administrative Leadership Theory 3 s.h.
Administrative leadership theory drawn from social psychology, facilities planning, management techniques.

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.

TD:301 Seminar: Urbanization arr.
Problems of urban centers related to education, city government, institutions; small scale research projects developed by students in consultation with specialists in urban problems. Same as 34:279, 44:37.

TD:303 Seminar: Administration and Coordination of Curriculum 3 s.h.
Intensive work in specific problems associated with administration of curriculum development, implementation, appraisal efforts; for advanced students with prior course work in administration and curriculum.

TD:304 Seminar: Supervision and Administration 2-3 s.h.
Issues of major significance to school organizational and instructional practices; evaluation of prior research and consideration of research proposals; for experimental supervisors and administrators. Consent of instructor required. Prerequisite: TD:261 or equivalent.

TD:360 Seminar School Business Management Administration 1-3 s.h.
Problems of school business management with emphasis on current issues; preparation for designing, conducting, and analyzing studies in school business management. Prerequisite: TD:295.

TD:361 Seminar: The Economics of Education arr.
Relationship between education and economics, including supply and demand, price allocation and productivity, educational planning, efficiency, effectiveness. Prerequisite: TD:294.

TD:367 Seminar Current Issues in Special Education Administration arr.
New developments in administration; new content each year. May be repeated. Consent of instructor required. Prerequisite: TD:256.

TD:370 Research Methodology and Quantitative Analysis 3 s.h.
Approaches to research and evaluation; design variety, report style, writing, literature review; role of cognitive and affective measures, questionnaires, interview schedules, observational data; research and evaluation as planning activities. Prerequisite: TP:143 or equivalent.

TD: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 personal faculty research projects; student assumes major responsibility. Consent of instructor required.

TD:373 Qualitative Research Design and Methods 3 s.h.
Theory and practice of qualitative research design and methodology; exploratory field experience in collection and analysis of data; individual and focus group interviews; participant observation. Open only to Ph.D. students.

TD:375 Educational Administration Practicum arr.
Supervised experience in working with educational administration problems, including organization, planning, evaluation, decision making.

TD:380 Seminar: Value Problems in the Administration of American Education 3 s.h.
Philosophical and sociological ideas underlying the American system of public education administration; ideas on the place of both conformity and dissent in democratic society and educational system; contemporary issues.

TD:381 Analysis and Assessment of Curriculum 2-3 s.h.
Comprehensive investigation of systematic procedures for identifying and evaluating essential features and constituent elements of a given school district’s curricular offering; for persons in administration, curriculum, and supervision programs or courses.

TD: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.

TD:384 Seminar for Education Executives 0-4 s.h.
Problem solving within an organization; specific problems determined by enrollments; for practicing school administrators.

TD:390 Selected Topics in Educational Administration arr.
Individual and group investigation of contemporary problems and issues in educational administration. Consent of instructor required. Prerequisite: TD:201.

TD:395 Educational Specialist Research in Educational Administration arr.
Individual instruction in the design, research, writing of a research project of significant quality for upper level graduate work. Consent of adviser required.

TD:401 Field Service Project in Elementary Administration arr.
Individual project based in a school setting; under instructor’s approval and supervision. Consent of instructor required.

TD:402 Field Service Project in Secondary Administration arr.
Individual project based in a school setting; under instructor’s approval and supervision. Consent of instructor required.

TD:403 Field Service Project in Special Education Administration arr.
Individual project based in a school setting; under instructor’s approval and supervision. Consent of instructor required.

TD:404 Field Service Project in Central Administration arr.
Individual project based in a school setting; under instructor’s approval and supervision. Consent of instructor required.

Supervision of research, design, writing of 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 only to freshmen.

7F:199 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. GE: 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 issues examined in historical perspective.

7F:104 Education in the Third World 2-3 s.h.
Educational implications of various development issues; role of technology, and international corporations and foreign aid educational dilemmas currently facing Third World governments.

7F:147 History of West Education 2-3 s.h.
Educational philosophy of significant individuals in history of education and relevance of their ideas in context of contemporary educational practice in the United States.

7F:117 Philosophies of Education 2,3,5 s.h.
Principal educational philosophers 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.
Macro-sociological perspective of roles of education to social systems; impact of formal education on social stratification, social mobility, economic achievement in the United States and selected countries.

7F:155 John Dewey and Education 2-3 s.h.
Dewey’s philosophy of “instrumentalism,” 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, GE: cultural diversity.

7F:160 Critical Thinking 3 s.h.
Formal and informal logic and probablistic reasoning; focus on construction and critical analysis of arguments; introduction for students planning research in social foundations.

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.
Influence of social factors such as discrimination, diversity, equity, racism, sexism, and ethnic and socioeconomic pluralism on American schools and classrooms; for teacher education candidates. GE: cultural diversity.

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.

7F:210 Education and Social Change 2-3 s.h.
Role of educational institutions, in connection with political and economic structures, in the process of social change; illumination of theories of social change through case studies of educational systems in both less developed and industrialized nations. Same as 34:310.

7F:235 Education and Public Policy 2-3 s.h.
Policy process; emphasis on related literature of organizational theory and policy analysis; critical analysis of problems and sources of variation in policy development and decision processes. 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 34:275, 42:275, 44:275, 102:275, 113:275.

7F:293 Individual Instruction in Social Foundations of Education 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, literary perspectives; analysis of post-1949 educational policy shifts.

7F:316 Policy, Planning, and Implementation in Education 2-3 s.h.
Review of research, applications. Same as 7H:316.

7F:493 Ph.D. Thesis Consent of instructor required.

Higher Education

7H:93 Individual Study Higher Education 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 scope, functions, trends of continuing education in the United States.
7H:112 Teaching of Adults 3 s.h.
Problems associated with adults in learning role; recognized variations in teaching techniques for adults.

7H:117 Foundations of Vocational Education 2-3 s.h.
Vocational education programs, with 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 7W:125.

7H:134 Education and the World of Work 2-3 s.h.
Relationship between education and work in individual and organizational behavior, and between educational and economic systems; economics, psychology, sociology, education.

7H:140 Higher Education System in Comparative Perspective 2-3 s.h.
Organization, functions, and management of higher and postsecondary education systems, institutions, and programs; emphasis on major models of rational systems; one nation examined in depth.

7H:171 The Community College 2-3 s.h.
Characteristics of community college as a postsecondary institution; functions, students, faculty, control, financing, administration, historical evolution.

7H:175 Workshop in Higher and Postsecondary Education Knowledge, experience shared through diverse strategies, schedules. Consent of instructor required.

7H:190 Introduction to Postsecondary Teaching 2 s.h.
Current trends and topics in postsecondary educational instruction, evaluation, legislation, licensure, curriculum development, professionalism.

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 institutional policies and procedures; role of professional associations. May be repeated. Consent of instructor required.

7H:192 Curriculum Development Application to Community Colleges 3 s.h.
Comprehension of a rational 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.
Topics submitted by students, faculty. May be repeated.

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.

7H:216 Finance and Economics of Higher Education 2-3 s.h.
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 influenced those developments.

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 to structural, 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 7H:225.

7H:226 Higher Education Management 2-3 s.h.
Variables that influence the decision-making process in American higher education; application oriented, with analysis of students’ own administrative skills. Prerequisite: background in organizational and administrative theory or consent of instructor.

7H:230 Microcomputers in Institutional Research 3 s.h.
Use of Internet and desktop computer for educational research, including current problems and educational data.

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 2-3 s.h.
Theories applied in developing and delivering continuing education programs; characteristics of populations to be served, marketing potential of cooperatively planned programs; assessment of educational 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.
Preparation for professional roles; emphasis on planning, evaluation; current issues and legal aspects.

7H:293 Individual Instruction in Higher Education arr.
Consent of instructor required.

7H:295 Master’s Project arr.
Research for the nonthesis program; topic approved by adviser.

7H:311 Seminar Research Topic in Higher Education 2-3 s.h.
Topic submitted by students, faculty. May be repeated.

7H:315 Curriculum Development in Higher Education 2-3 s.h.
Basic educational models, design and implementation techniques appropriate to educational program development.

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 organizational culture. Prerequisite: 7H:224 or 7H:226 or consent of instructor.

7H:318 Legal Issues in Student Services 3 s.h.
Analyses of legal issues and their application to design of policies and procedures for student services in postsecondary institutions. Prerequisite: 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 and skills in college planning, decision making; broadened awareness of marketing concepts. Prerequisite: 7H:220 or consent of instructor.

7H:333 Practicum in Higher Education arr.
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, institutional, intellectual life in the United States; effects on present and future of higher learning; comparative analysis. Prerequisite: 7H:220 or consent of instructor.

7H:370 College Teaching Internship arr.
Supervised teaching at the college level; institution governance and procedures. May be repeated. Consent of adviser required.

7H:395 Educational Specialist Research in Higher Education arr.
Supervision of design, research, writing of a research project; for Ed.D. candidates. Consent of instructor required.

7H:401 Seminar in Higher Education 1-2 s.h.
Current topics and major areas of professional and research interest. For doctoral students in higher education. May be repeated. Consent of instructor required.


PSYCHOLOGICAL AND QUANTITATIVE FOUNDATIONS

Chair: David F. Lohman
Professors emeriti: Gordon N. Cantor, William E. Coffman, Leonard S. Feldt, Albert N. Hieronymus, Siegmund Muehl, Bill Carl Snider, Lawrence M. Stoltz

Associate professors: Stephen M. Alessi, Timothy N. Ansley, Kathryn C. Gerken, William B. Oglesby, Audrey L. Chuals, Walter P. Vispoel, John S. Westfeldt, Donald B. Yarbrough

Associate professors emeriti: Barry D. Bratton, Lida C. Cochran, Carl S. Davis

Adjunct associate professors: Michele Eliason, E. James Maxey

Assistant professors: Robert D. Ankenmann, Margaret C. Lohman, Greg M. MacMann, Joyce L. Moore, Sharon Sackett

Adjunct assistant professors: Susan Assouline, Audrey S. Bahrick, Martha Christiansen, Cynthia Druva-Roush, Richard L. Ferguson, Deborah J. Harris, Michael J. Kolen, Philip R. Laughlin, Julia C. Lenel, Candida R. Maurer, Terry McNabb, Christine G. Novak, Leonard Welsh

Instructors emeriti: Elizabeth J. Forell, Calvin E. Meth

Lecturers: G. John Achrazoglou, William E. Martin Jr.
Graduate 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. Students select a division adviser.
who helps them choose 18 semester hours of course work, of which 12 semester hours must be in 100-level courses. This minor does not lead to certification as a public school teacher.

One of the General Education Program requirements for graduation from the College of Liberal Arts is successful completion of a course designed to develop skills in quantitative or formal reasoning (see the College of Liberal Arts section of the Catalog). 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 basic knowledge of educational measurement, program evaluation, and data analysis. Such positions exist 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 standards for admission requirement. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable.

Students who want to transfer to this program from another University of Iowa program must submit a statement explaining why they want to change programs and why they think the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

REQUIREMENTS

The degree may be earned with thesis (minimum of 28 semester hours of course work plus 2-4 semester hours of thesis credit) or without thesis (32-semester-hour minimum). 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 and federal agencies, 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. Applicants who score lower than 500 on the verbal, quantitative, or analytical sections of the Graduate Record Examination (GRE) General Test, and who do not show offsetting evidence of superior ability, are not admitted. However, the faculty may adjust the GRE standards for students whose native language is not English.

Students who expect to concentrate in 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.

Students who want to transfer to this program from another University of Iowa program must submit a statement explaining why they want to change programs and why they think the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

REQUIREMENTS

In addition to the substantive courses in educational measurement and statistics offered by the division, all students must complete the following related courses.

7C:254 Appraisal in Counseling 3 s.h.
7P:131 Educational Psychology 3 s.h.
7P:165 Introduction to Program Evaluation 3 s.h.
7P:220 Educational Research Methodology 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 advanced 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.

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 committe 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 1993.

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 a variety of settings, including higher education, counseling centers, clinics, private practice settings, and hospitals.

ADMISSION

Applications are complete when the following items have been received:

the Graduate College application form;
official transcripts of all previous undergraduate and graduate work;
Students must enroll in practicums to reach a specified level of client contact, supervision, and additional experience hours. The first practicum is served at the University Counseling Service. Subsequent placements at other sites must have prior approval of the counseling psychology faculty. Students must successfully complete one semester of 7P:434 Practicum in Counseling Psychology before enrolling in 7P:453 Advanced Practicum in Counseling Psychology.

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.

Students must show appropriate levels of emotional balance and interpersonal skills and act within the American Psychological Association’s Ethical Principles of Psychologists.

Educational Psychology

Master of Ark
Students in the M.A. program are expected to complete the degree in two years of full-time study. Each student’s progress is evaluated by the faculty after one academic year (two semesters) of study and during subsequent years. Students who do not make satisfactory progress may be required to withdraw from the program.

ADMISSION
The grade-point average requirements for admission is the same as that established by the Graduate College, but most successful applicants have records that exceed this standard. Candidates must have taken the Graduate Record Examination (GRE) General Test; successful applicants’ total score for the verbal and mathematics tests usually exceed 1000. Applicants who majored in psychology as undergraduates are encouraged to take the Graduate Record Examination psychology test and submit their score. Applicants from other countries whose native language is not English usually are required to submit acceptable scores on the TOEFL exam. Teaching experience is desirable but not required.

The review of applications for fall semester admissions begins January 1; the application deadline is February 1. The application deadline for spring semester entry is October 1. Admission decisions are announced approximately one month after the application deadline.

Applicants who accept admission or financial aid for the following fall and do not relinquish either one on or before April 15 may not solicit or accept another offer. Offers made by the program after April 15 include the proviso that the offer is void if the applicant accepts and continues to hold on that date a previous offer made by another program listed in Graduate Study in Psychology. This policy is consistent with standards set by the Board of Educational Affairs of the American Psychological Association.

Nonthesis Program Requirements
A minimum of 32 semester hours of course work is required for the degree without thesis. Students develop their programs in consultation with their faculty adviser. A typical program for a full-time M.A. student includes at least 9 semester hours in each of the fall and spring semesters, with the option of summer course work. Students should be able to complete the program in four semesters of full-time study.

Depending on choice and availability of courses, students may be able to complete the program more quickly. Students may apply to have equivalent course work from another institution or department substituted for required or recommended courses.

Required courses:
7P:131 Educational Psychology 3 s.h.
7P:143 Introduction to Statistical Methods 3 s.h.
7P:221 The Profession of Educational Psychology 2 s.h.

Recommended core courses:
7P:102 Human Intelligence 3 s.h.
7P:106 Child Development 3 s.h.
7P:111 Introduction to Human Motivation 3 s.h.
7P:169 Introduction to Personality 3 s.h.
7P:181 Introduction to Theories of Learning 3 s.h.
Electives 6 s.h.

M.A. students, with the approval of their advisers, may complete their programs by electing other courses offered either in or outside of the educational psychology program. Many elect to take more course work in statistics, more advanced course work in educational psychology, or courses in related disciplines. Consult the program description for the Ph.D. degree and list of courses offered by other University of Iowa programs in the Catalog.

Comprehensive Examination
A six-hour comprehensive examination is administered by the student services office during the M.A. comprehensive exam period each fall and spring semester. The faculty evaluates each student’s performance using the results of this examination, course work, and other indices of achievement and professional development. The exam covers knowledge and skills typically associated with the required and
recommended introductory courses listed for the program. Students who score poorly in one or more areas may be required to take additional course work in those areas or to complete other remedial activities specified by the faculty.

**THESIS PROGRAM REQUIREMENTS**
A minimum of 28 semester hours of course work and 2-4 semester hours of thesis credit are required for the master’s degree with thesis. This option is available only to students who are accepted into the Ph.D. program initially and must change their degree objective. Required and recommended courses are the same as those for the M.A. without thesis, except that thesis students also must take 7P:393 M.A. Thesis in Psychological and Quantitative Foundations. An accepted thesis proposal may constitute part of the comprehensive examination.

**Doctor of Philosophy**

Students in the Ph.D. program are reviewed annually by the faculty. Students must complete their second-year project by the end of their second academic year in the program. Those who do not fulfill this requirement or who otherwise fail to make satisfactory progress as evaluated in the annual faculty review may be required to withdraw from the program.

Students who enter the Ph.D. program with a Master of Arts without thesis are required to complete the independent research course sequence and an assigned research project in either their first or second year, as agreed upon admission.

**ADMISSION**
The minimum graduate grade-point average and Graduate Record Examination (GRE) requirements for admission are the same as those established by the Graduate College, but most successful applicants have records that exceed these standards. Candidates must have taken the Graduate Record Examination General Test. Successful applicants’ total scores for the verbal and mathematics tests almost always exceed 1000. Applicants who majored in psychology as undergraduates are encouraged to take the Graduate Record Examination psychology test and submit their score. Applicants from other countries whose native language is not English usually are required to submit acceptable scores on the TOEFL exam. Candidates who do not meet the standard requirements may be admitted conditionally on the basis of other evidence, such as high grade-point average, strong academic preparation, and highly supportive recommendations.

Students begin the program in the fall semester. The review of applications begins January 1; the application deadline is February 1. Admission decisions are announced approximately one month after the application deadline.

Applicants who accept admission or financial aid and do not relinquish either one on or before April 15 may not solicit or accept another offer. Offers made by the program after April 15 include the proviso that the offer is void if the applicant accepts a previous offer made by another program listed in the Graduate Study in Psychology. This policy is consistent with standards set by the Board of Educational Affairs of the American Psychological Association.

**REQUIREMENTS**
The student and his or her adviser plan the program jointly. The degree requires a minimum of 72 semester hours beyond the bachelor’s degree. The required courses listed below encompass four substantive areas within educational psychology: human development, cognition/learning, motivation/personality, and individual differences. Each student must earn a minimum of 12 semester hours in 200-level courses in these four areas. Also required are an introductory course in educational psychology, two seminars that orient students to educational psychology as a profession and to key readings in the field, a research seminar in which students assist with and eventually design and carry out original research, and several courses in statistics and measurement.

Some requirements may be waived for students who begin the Ph.D. program with a master’s degree or specific course work from another program. Course requirements are as follows.

- **All of these:**
  - 7P:131 Educational Psychology 3 s.h.
  - 7P:220 Educational Research Methodology 3 s.h.
  - 7P:221 The Profession of Educational Psychology 2 s.h.
  - 7P:222 Classic Readings in Educational Psychology (may be repeated for additional credit) 3 s.h.
  - 7P:230 Research in Educational Psychology (minimum requirement; may be repeated for additional credit; enrollment required in first and second year of program) 1-3 s.h.
  - 7P:257 Educational Measurement and Evaluation Using Standardized Instruments (or equivalent) 3 s.h.
  - 7P:493 Ph.D. Thesis in Educational Psychology (minimum requirement) 10 s.h.

At least four of these:

- 7P:202 Cognitive Differential Psychology 3 s.h.
- 7P:206 Advanced Child Development 3 s.h.
- 7P:231 Adult Development and Learning 3 s.h.
- 7P:269 Advanced Personality 3 s.h.
- 7P:270 Cognitive Psychology of Reading 3-4 s.h.
- 7P:281 Cognitive Theories of Learning 3 s.h.
- 7P:283 Cognitive Development 3 s.h.
- 7P:285 Advanced Theories of Motivation 3 s.h.
- Variable Seminars: Educational Psychology I, II, IV, VI arr.

Electives 15 s.h.

At least two of these (or equivalents):

- 7P:243 Intermediate Statistical Methods 3 s.h.
- 7P:244 Correlation and Regression 4 s.h.
- 7P:245 Application of Multivariate Statistical Techniques 4 s.h.
- 7P:246 Design of Experiments 4 s.h.
- 7P:247 Nonparametrics Statistical Methods 3 s.h.
- 7P:252 Introduction to Multivariate Statistical Methods 3 s.h.

**Minor Area Requirement**

Students must complete a minimum of 12 semester hours that constitute a coherent program of course work outside the program and beyond the courses listed above. The minor area may be in a foundation discipline, such as psychology, or in another area of education, such as mathematics education, educational philosophy, or program evaluation. Course work must be at the 200-level or above and may span departments and colleges so long as it reflects a plan approved by the student’s adviser.

**Second-Year Research Project**
As part of their second year of participation in 7P:230 Research in Educational Psychology, Ph.D. students are required to complete a research project of modest scope under the direction of a faculty member and must present the work in both oral and written form to the program’s faculty and students. First-year Ph.D. students may assist second-year students with data collection and other research activities, and students may design and conduct projects in collaboration with other students. The written report must be completed by the end of the student’s second academic year in the program. Students may re-enroll in this course beyond their second year.

**Comprehensive Examination**
The Ph.D. comprehensive examination in educational psychology emphasizes competence rather than courses. Unlike the master’s comprehensive exam, which emphasizes breadth, the Ph.D. exam emphasizes depth in one or more narrowly defined areas of research and theory. Students choose among three options in consultation with their adviser and with the approval of the examining committee, which is made up of five faculty members and is not necessarily the same as the dissertation committee. The options are a review article, an extended research activity, or a traditional comprehensive examination.

**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 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 educational psychology, 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 January 1 to be considered for fall semester admission. Decisions are made by March 15. The program admits a maximum of 10 students 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 students and their 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 doctoral dissertation through enrollment for a minimum of 10 semester hours in 7P:493 Ph.D. Thesis in Psychological and Quantitative Foundations.

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 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. Applicants who do not meet these requirements but who show compelling evidence of superior ability may be granted conditional admission. Regardless of admission status, all students are expected to maintain a grade-point average of at least 3.00. Applicants should include with their application a personal statement about their interest in the field.

Applications for admission must be received by February 1 for fall semester and October 1 for spring semester.

REQUIREMENTS
The degree requires the following core courses (or approved equivalents).

- 7P:107 Psychological Bases of Instructional Design 3 s.h.
- 7P:150 Introduction to Educational Measurement 3-4 s.h.
- 7W:120 Introduction to Instructional Design 3 s.h.
- 7W:135 Computer Applications for Instruction 3 s.h.
- 7W:200 Performance Analysis 3 s.h.
- 7W:220 Advanced Instructional Design 3 s.h.

Students plan the remainder of their programs in consultation with their adviser, choosing course work in one of the following specialization areas: classroom instruction, computer applications, general instructional development, training and human resources development, and media design and 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 thesis option is chosen, 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, two to three hours; area of specialization, two to three hours; other, zero or two hours.

Doctor of Philosophy
The Ph.D. program in instructional design and technology provides a broad background for persons interested in research, development, 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 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 February 1 for fall semester and October 1 for spring semester.

REQUIREMENTS
Course work required for the degree includes the core of the M.A. program or equivalent course work, 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. Students who have not completed a master's thesis or Ed.S. project must complete a formal paper equivalent to a master's thesis. The paper should be done as early as possible in the doctoral program and no later than the semester before the student takes the comprehensive examination. Students should discuss the paper with their adviser early in the program. The paper must be submitted to and approved by three members of the instructional design and technology faculty before the student can be permitted to take the comprehensive examination.

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, three to five hours; area of specialization, three to four hours; other, zero or three 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 also are 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

*Students may receive credit for only two of these three courses: 22S:2, 22S:8, and 22S:25 (same as 7P:25). Credit for 22S:2 is given only if the course is taken before 22S:8 or 22S:25 (same as 7P:25).

- 7P:25 Elementary Statistics and Inference 3 s.h.
  Graphical techniques for presenting data; descriptive statistics; sampling distribution models; logic of statistical inference; interval estimation procedures; tests of significance; correlation and prediction. GE quantitative or verbal reasoning. Prerequisite: 22S:1 or equivalent. Same as 22S:25.
- 7P:50 Cross Cultural Psychology 3 s.h.
  Conceptual, theoretical, practical issues and problems in relationship between culture and behavior in American society; similarities, differences in social behavior across cultures.
- 7P:75 Educational Psychology and Measurement 3 s.h.
  Principles of cognitive and social development, learning, memory, problem solving, individual differences, testing, classroom management, their relationship to education.
- 7P:80 Psychology of Academic Learning 3 s.h.
  Psychological theory, research on overall academic learning; reading, memory, student development, career choice, learning strategies.
- 7P:101 Methods of Student Assessment 3 s.h.
  Development, use, evaluation of student assessment methods: written tests, performance and product assessments, observation, oral questioning, checklists; grading and reporting; administration and use of standardized tests of achievement and other cognitive abilities.
- 7P:102 Human Intelligence 3 s.h.
  History of research; trait and process theories of academic, social, practical intelligence; special abilities; ability development and training.
Psychological and Quantitative Foundations • Education

7P:106 Child Development 3 s.h.
Theories, research findings about typical course of child development, differences in development.

7P:107 Psychological Bases of Instruction and Design 3 s.h.
Same as 7W:107.

7P:109 Socialization of the School-Age Child 3 s.h.
Factors influencing children’s socialization; emphasis on those relevant to education.

7P:111 Introduction to Human Motivation 3 s.h.
Human motivation; theories and issues; practical implications of research findings and relationships between motivation, learning, performance.

7P:120 Psychology of Goodness 3 s.h.
Concepts of learning, child development, motivation; issues unique to gifted education. Same as 7C:120.

7P:121 Assessment of Goodness and Academic Talent 3 s.h.
Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for grades K-12: ability, aptitude, achievement test; current issues in the uses of various instruments. Same as 7C:121.

7P:126 Cognitive and Affective Needs of Underachieving Gifted Students 1 s.h.
Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as 7C:126.

7P:127 Research and Theory in Talent/Goodness 1 s.h.
Symposium. Same as 7C:127.

7P:131 Educational Psychology 3 s.h.
Psychology of the teaching-learning process; developmental concepts, social processes, language and thought; individual differences in abilities and achievements; theory and research on reading, writing, mathematics, thinking, studying other topics in instructional psychology.

7P:133 The Adolescent and Young Adult 3 s.h.
Psychological, social aspects of adolescence and young adulthood; emphasis on theory, research, practical applications.

7P:134 Parent-Teacher Communication 1-3 s.h.
Realities of working with parents; interpersonal skills; options for parent support services. Same as 7L:133, 7L:134.

7P:156 Home/School/Community Partnerships 3 s.h.
Issues related to collaboration among families, educators, community members in implementing school programs. Same as 7E:136, 7E:136, 7E:136.

7P:14 Introduction to Statistical Methods 3 s.h.
Analysis, interpretation of research data; descriptive statistics; introduction to probability, sampling theory, statistical inference (binomial, normal distribution, t-distribution models); linear correlation, regression. Same as 22S:102.

7P:148 Bayesian Statistics 1 s.h.
Same as 22S:148.

7P:150 Introduction to Educational Measurement 3-4 s.h.
Test development procedures, reliability, validity, item writing, evaluation of item and test characteristics; classroom assessment methods; interpretation of scores from standardized achievement and aptitude tests; no background in statistics assumed.

7P:151 Survey Research and Design 3 s.h.
Same as 7T:170.

7P:155 Introduction to program Evaluation 3 s.h.
Models, designs, data collection techniques that guide program evaluation; current issues, controversies.

7P:156 Introduction to Personality 3 s.h.
Theory and research on individual differences in personality; attention to role of personality in learning and cognitive performance.

7P:176 Psychology of writing 3 s.h.
The writing process compared and contrasted with speaking, listening, reading; theoretical models of the writing process, writing and thinking, impediments to writing, facilitating writing, writing instruction, computers in writing instruction, learning with writing, evaluating writing; emphasis on psychological and psycholinguistic 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, 7E:185.

7P:190 Special Readings and Projects 3 s.h.
Supervised individual study. Senior standing and consent of instructor required.

7P:191 Topics in Psychological and Quantitative Foundations 3 s.h.
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 Differential Psychology 3 s.h.
Advanced topics in human abilities, emphasis on elimination-processing research, definition of abilities and ability development. Prerequisites: 7P:102, 7P:143, and 7P:257; or consent of instructor.

7P:206 Advanced Child Development 3 s.h.
Theories of social and cognitive development; in-depth study of several current controversies in the field. Prerequisite: 7P:106; or equivalent or consent of instructor.

7P:207 Evaluation of Children with Learning Disabilities 3 s.h.
Same as 7P:245.

7P:210 Social Psychology of Disability 3 s.h.
Social psychology of disability; issues in mental/physical disability from individual, societal perspective; advanced research seminar with emphasis on current research, theoretical strategies in psychology of disability. Doctoral standing and consent of instructor required. Same as 7E:250.

7P:220 Educational Research Methodology 3 s.h.
Procedures for planning, conducting, reporting research; evaluation of current methods in educational research. Prerequisite: 7P:143.

7P:221 The Profession of Educational Psychology 2 s.h.
Introduction to the discipline and career opportunities in the field; professional ethics, the publication process, career development. Consent of instructor required.

7P:222 Classic Readings in Educational Psychology 3 s.h.
Classic papers that define the discipline of educational psychology. May be repeated. Graduate standing and consent of instructor required.

7P:221 Introduction to Counseling Psychology Practice/Research 1 s.h.
Historical, theoretical, professional, scientific traditions associated with counseling psychology; focus on developing a research orientation to the field. Consent of instructor required.

7P:225 Introduction to Counseling Psychology Practice/Research 1 s.h.
Learning and performance of basic helping skills; integration of these skills with counseling; current broadening counseling strategies; laboratory-based. Consent of instructor required.

7P:230 Research in Educational Psychology 1-3 s.h.
Experience in conducting or assisting in educational psychology empirical research project; activities from conceptualization through data generation; preparation and presentation of research report. May be repeated. Graduate standing in educational psychology or consent of instructor required.

7P:231 Adult Development and Learning 3 s.h.
Research and theory on adult development and learning between ages 50 and 60; emphasis on direct implications for and applications to education and training. Same as 7W:231.

7P:235 Multicultural Counseling 1-3 s.h.
Today’s multicultural counseling issues; theoretical, practical aspects of the cultural adaptation 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; contributions and sociopolitical experiences of diverse groups in western society; implications for counselors. Prerequisites: 7P:233 or consent of instructor.

7P:241 Intermediate Statistical Methods 3 s.h.
Foundation for more advanced applied courses; logic of statistical inference, regression, 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, 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:157.

7P:245 Application of Multivariate Statistical Techniques 4 s.h.
Multivariate analyses of variance, regression analysis, factor analysis; use of a computer statistical package. Prerequisites: 7P:244 and 7P:246, or equivalents. Same as 22S:161.

7P:246 Design of Experiments Theory and methods in the planning and statistical analysis of experimental studies; testing of hypotheses about linear contrasts among means in single-factor and multifactor, completely randomized, and repeated measurement designs. Prerequisite: 7P:243 or equivalent. Same as 22S:159.

7P:247 Nonparametrics Statistical Methods 3 s.h.
Selected nonparametrics methods; one- and two-sample location tests and estimation methods, two-sample tests, measures of variance; emphasis on relationships to classical parametric procedures. Prerequisite: 7P:243 or 22S:120 or consent of instructor. Same as 22S:163.

7P:248 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:249 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:251 Introduction to Multivariate Statistical Methods 3 s.h.
Selected topics in multivariate analysis, including multivariate signficance 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, peer rating measures, questionnaires; emphasis on methods of instrument development and evaluation of instrument characteristics. Prerequisites: 7P:243 and 22S:257, or equivalents.

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. Corequisite: 7P:143 or equivalent.

7P:258 Theory and Technique in Educational Measurement 3 s.h.
Mathematical foundations, principal results, and applications of classical test theory; perspectives on conditional error variance, binomial error model and applications; introduction to item response theory; advanced measurement topics.

7P:259 Scaling Methods 3 s.h.
Multidimensional and multidimensional scaling techniques; introduction to available computer programs for scaling; applications in educational and psychological research. Prerequisite: 7P:252 or equivalent. Recommended: 7P:249.

7P:260 Item Response Theory 3 s.h.
Theoretical foundations and practical applications; mathematical models and estimation techniques; emphasis on current applications and issues in testing computer estimation programs. Prerequisites: 7P:243 and 7P:257.
TP:265 Program Evaluation 3 s.h.
Theoretical issues and considerations in evaluation of educational and social programs; evaluation design, methodology, evaluation utilization.
Prerequisites: TP:143, TP:150, and TP:165; or consent of instructor.

TP: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: TP: 169 or equivalent.

TP:270 Cognitive Psychology of Reading 3-4 s.h.
Theories and models of the reading process; in-depth development of the relationship between reading and intelligence; and of individual and cross language differences; review of selected research studies from recent, current literature. Consent of instructor required.

TP:281 Cognitive Theories of Learning 3 s.h.
Theories of learning and cognition as they relate to education; application of cognitive research to subject matter learning (mathematics, science, reading, writing). Prerequisites: introductory course in learning, and TP:131 or equivalent.

TP:282 Cognitive Processes in School Learning 3 s.h.
Theoretical and empirical research investigating the cognitive processes involved in school learning. Prerequisites: introductory course in learning, and TP:131 or equivalent.

TP:283 Cognitive Development 3 s.h.
Information processing, contextualist, and neo-Piagetian theories of cognitive development and their educational implications; individual differences in cognitive development.

TP:285 Advanced Theories of Motivation 3 s.h.
Characteristics and practical implications of current theories in human motivation; instrument-development and assessment concerns; individual differences, intervention strategies, theory refinement and integration. Prerequisite: TP:131 or consent of instructor.

TP:292 Supervised Research in Educational Psychology 1-3 s.h.
Identification of research problems, development of research designs and materials, conducting of research studies; faculty guided activity or seminars. Consent of instructor required.

TP:293 Individual Instruction in Psychological and Quantitative Foundations arr.
Consent of instructor required.

TP:305 Psychotherapy I: Dynamic and Phenomenological Approaches 3 s.h.
Major psychodynamic and existential phenomenological theories of personality; emphasis on implications for psychotherapy.

TP:310 Psychodiagnoses 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.

TP:320 History and Systems of Psychology 3 s.h.
Philosophical underpinnings of psychology, early systems in psychology, developments in the 20th century.

TP:331 Seminar: Educational Psychology I: Current Topics arr.
Intensive investigation of a specific research topic. Consent of instructor required.

TP:332 Seminar: Educational Psychology II: Psychology of Learning arr.
Topics 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: Motivation arr.
In-depth examination of selected topics. Consent of instructor required.

TP:336 Seminar: Educational Psychology VI: Advanced Topics in Child Development arr.
In-depth examination of selected topics in developmental theory. Consent of instructor required.

TP:350 Seminar in Evaluation 2-3 s.h.
In-depth examination of selected topics. Prerequisites: two courses in evaluation, including TP:265; or consent of instructor.

TP:354 Seminar: Experimental Approaches in Counseling Research arr.
Application of experimental methodology to study of counseling and vocational phenomena. May be repeated. Consent of instructor required.

Critical examination of current issues and problems of the professional worker in the field of educational measurement and evaluation as reflected in research literature, other professional communication media.

TP:356 Processes and Outcomes in Counseling and Psychotherapy 3 s.h.
Advanced knowledge of the state of process and outcome research on psychotherapeutic procedures. Ph.D. candidacy in appropriate field required.

TP:358 Equating and Scaling of Educational Tests 3 s.h.
Designs and methods, including linear, equipercentile, and item response theory methods; emphasis on concepts, applications to testing programs, research. Prerequisites: TP:243 and TP:257, or consent of instructor.

TP:365 Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h.
Major cognitive and behavioral theories of personality and psychotherapy; emphasis on Implications for clinical practice.

TP:375 Topics in Educational Measurement and Statistics 1-3 s.h.
May be repeated.

TP:380 Practicum in College Teaching arr.
Supervised college teaching experience in courses related to major academic areas, in collaboration with faculty course instructors.

TP:390 M.A. Thesis in Psychological and Quantitative Foundations arr.
Consent of instructor required.

TP:394 Supervised Research in Counseling Psychology 1-3 s.h.

TP:434 Practicum in Counseling Psychology 3 s.h.
Supervised practice in counseling services. Consent of instructor required. Prerequisites: TP:223 and TP:225, or equivalents.

TP:450 Practicum in Program Evaluation arr.
Supervised experience in designing and implementing components of program evaluations. Consent of instructor required. Prerequisites: two courses in program evaluation, including TP:265; or consent of instructor.

TP:453 Advanced Practicum in Counseling Psychology 1-3 s.h.
Supervised work in counseling services. May be repeated. Consent of instructor required. Prerequisite: TP:454 or equivalent.

TP:455 Generalizability Theory 2 s.h.
Analysis of variance methods applied to estimation of components of various types of measurement error variance; basic concepts, mathematical foundations, models, assumptions, designs, applications; relationships with other measurement theories. Prerequisite: TP:240 or TP:258, or consent of instructor.

TP:465 Issues and Ethics in Professional Psychology 3 s.h.
Professional ethics; issues in professional practice of psychology.

Consent of instructor required.

TP:524 Prepracticum in School Psychology 3 s.h.
Preparation for responsibilities in school and clinical practice.

TP:527 Practicum in School Psychological Service arr.
Supervised practicum and educational evaluation in school settings. May be repeated. Consent of instructor required. Prerequisites: TP:238 and TP:251.

TP:528 Assessment of Learning Difficulties 1-3 s.h.
Same as TP:258.

TP:231 Individual Intelligence Testing 3 s.h.
Administration of individual intelligence tests, interpretation of test results; issues in psychological testing; factors that influence performance. Consent of instructor required. Prerequisite: TP:143 or TP:150.

TP:263 Consultation Theory and Practice 2-3 s.h.
Same as TP:263, TP:265.

TP:311 Practicum in Counseling and Psychological Services for Gifted Students 1-6 s.h.
Educational, personal, family issues for graduate students who have had course work in counseling education, counseling psychology, school psychology, educational psychology, related fields. Consent of instructor required. Prerequisite: TP:170 or equivalent. Same as TP:311.

TP:315 Psychodiagnostics: Children and Adolescents 3 s.h.
Link between personality theory, child and adolescent assessment; interpretation, integration of assessment information; record reviews, interview; objective tests, projective techniques. Prerequisites: TP:238 and TP:251, or equivalents.

TP:337 Advanced Practicum in School Psychology arr.

TP:340 Professional Seminar-School Psychology 1-3 s.h.
Historical look at school psychology; current influences on role; overview of contemporary issues. Consent of instructor required.

Experience in research facilities on campus; assistance for students writing research questions, planning a research study, writing a research article. Consent of instructor required.

TP:345 Seminar in Psychoeducational Interventions I 3 s.h.
Interventions used by school and support system personnel to address cognitive abilities of children, adolescents.

TP:346 Seminar in Psychoeducational Interventions II 3 s.h.
Interventions used by school and support system personnel to address behavioral and social/emotional status of children, adolescents.

TP:347 Seminar in Psychoeducational Interventions III 3 s.h.
Interventions used by school and support system personnel; focus on work with parents, siblings.

TP:348 Seminar in Psychoeducational Interventions IV 3 s.h.
Interventions used by school and support system personnel in work with linguistically or ethnically diverse children, adolescents.

TP:349 Seminar in Psychoeducational Interventions V 3 s.h.
Interventions used by school and support system personnel in work with preschool-age children, their families.

TP:352 Seminar: Behavioral Assessment and Evaluation arr.
Prerequisite: TP:240. Same as TP:252.

TP:366 Organization Development and Change 3 s.h.
Same as TP:366, TP:368.

TP:390 Supervision of School Psychology Internship/Internship arr.
Experience supervising school psychology practicum or internship students; for doctoral students. Consent of instructor required.

Job site supervision of professional services. Consent of instructor required. Prerequisite: Ed.S. in school psychology.

TP:437 Internship in School Psychology arr.
Supervised internship for doctoral candidates in school psychology. Consent of instructor required. Prerequisite: completion course requirements for degree.

Instructional Design and Technology

*Elementary education majors are required to take 7W:91.

*7W:91 Audiovisual Equipment for Instruction 1 s.h.
Operation and application of audioslidal/video/computer equipment in schools for effective instructional classroom materials, enhanced teaching.
Psychological and Quantitative Foundations ● Education

7W:104 Digital Video 1 s.h.
Basic digital video production: scripting, preproduction planning, shooting, lighting, audio, and editing using Premiere software on Power Macintosh computers; introduction.

7W:102 Digital Photography 1 s.h.
Basic digital still photography using Apple Quick-Take digital still cameras, flatbed and slide scanners, and Photoshop software on Power Macintosh computers; introduction.

7W:101 Digital Graphics 1 s.h.
Basic graphic design, layout, and typography using Pagemaker software on Power Macintosh computers; introduction.

7W:100 Digital Audio 1 s.h.
Basic digital audio production using digital audiotape recorders and Sound-Edit 16 software on Power Macintosh computers; introduction.

7W:99 Digital Video 1 s.h.
Basic digital video production: scripting, preproduction planning, shooting, lighting, audio, and editing using Premiere software on Power Macintosh computers; introduction.

7W:98 Global Networks for Instruction arr.
Instructional Internet resources; use of the World Wide Web, newsgroups, electronic mail; creation of educational Internet pages and links in HTML; introduction.

7W:96 Authoring Computerized Instruction 1 s.h.
Use of authoring systems and tools to design and produce computerized lessons; Microsoft Windows, Macintosh Finder, Authorware Professional, HyperCard, HyperStudio, flowcharting programs; introduction.

7W:95 Psychological Bases of Instructional Design 3 s.h.
Effects of adjacent 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.
Models, principles, and techniques in designing instruction for use in a variety of settings.

7W:125 Introduction to Distance Education 3 s.h.
Print, audio, video, computer delivery systems; focus on applications, instructional designs, future developments. Same as TP:125.

7W:150 Photography for Instruction 3 s.h.
Basic still photography; black-and-white darkroom photography and digital photography using Photoshop software on Power Macintosh computers; traditional 35mm cameras, Apple Quick-Take digital cameras, flatbed and slide scanners.

7W:134 Instructional Videotape Production 3 s.h.
Basic video production; scripting, preproduction planning, location and studio shooting, audio, lighting, and editing on videotape editing systems and digital systems using Premiere software on Power Macintosh computers.

7W:135 Computer Applications for Instruction 3 s.h.
Theory, design, and evaluation of instructional software.

7W:139 Beginning Computer Graphics 3 s.h.
Development and use of visual information for instructional software.

7W:151 CAI Authoring Tools 3 s.h.
Programming and authoring tools for computer-assisted instruction; authoring systems, hypertext, e-mail, scanning, presentation systems. Prerequisite: 7W:135.

7W:180 Special Topics in Instructional Design and Technology arr.
Areas of special interest for selected groups; content varies.

7W:200 Performance Analysis 3 s.h.
Systematic process of analyzing performance in order to identify problems, determine causes, and specify solutions. 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, and evaluation of computer-assisted instruction. Consent of instructor required. Prerequisite: 7W:135.
College of Engineering

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:
Kyung K. Choi
Acting director, Institute of Hydraulic Research:
Virenda C. Patel
Director, Iowa Spine Research Center: Malcolm H. Pope
Degrees: B.S.E., M.S., Ph.D.

Student and industry participants in a College of Engineering/John Deere Dubuque Works design program

Biomedical Engineering ............. 360
Chemical and Biochemical Engineering .......... 364
Civil and Environmental Engineering .......... 368
Electrical and Computer Engineering .......... 375
Industrial Engineering ............. 379
Mechanical Engineering ............. 384
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’s mission is to develop, disseminate, transfer, and preserve technical knowledge that improves people’s lives. The college endeavors to:

- provide a well-rounded and superior engineering education that draws upon resources of a comprehensive research university to attract outstanding undergraduate and graduate students in selected engineering fields;
- conduct high-quality research in selected areas, enabling faculty members and students to keep pace with new developments and ensuring that the newest concepts are taught in its courses; and
- serve the needs of the University, industry, government, and the general populace by making its facilities and faculty expertise accessible.

Undergraduate 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 departmental or approved program in the College of Liberal Arts may be combined with any of the undergraduate programs offered by the College of Engineering.

The undergraduate programs in biomedical, chemical, civil, electrical, industrial, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Four-Year Graduation Plan

Students at The University of Iowa may elect to complete their degree requirements within four years of their initial freshman enrollment. College of Engineering students who choose to participate in the University’s Four-Year Graduation Plan must be enrolled in the College of Liberal Arts and must have completed at least 45 semester hours of study in the college before 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.

Dean's List

Engineering students who achieve grade-point averages of 3.50 or above during a given semester on 12 or more semester hours of graded work, with no I or O grades standing on the current or past semester’s record, 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, with no I or O grades standing on the current or past semester’s record, are recognized by inclusion on the president’s list.

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 grade-point average of at least 2.00 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 higher 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
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 1 and 11 and Rhetoric, which is a freshman course in writing, speaking, and critical reading. The Engineering 1 and 11 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 in an order that provides a meaningful pattern 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 each 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 science courses use the underlying principles learned in the mathematics and basic science courses to understand and predict the behavior of idealized models of real components or systems encountered in engineering. These courses include 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.

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-third 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 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 11 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 are 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 10:1-2 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 beginning courses specified in each engineering curriculum appear on a student’s grade report and permanent record, but generally are not used to satisfy any electives or required courses for an engineering degree. Examples of courses in this category besides 10:1 Rhetoric include mathematics courses 22M: 1-20, chemistry courses 4-5-8, and physics courses 29-4-15.

For undecided engineering majors who want to postpone selecting an engineering major beyond the freshman year, a third semester of courses common to all the majors could include the following.

Third Semester

22M:41 Differential Equations for Engineers 3 s.h.
29:18 Introductory Physics 11 4 s.h.
57:7 Statics 2 s.h.
57:8 Electrical Circuits 3 s.h.
57:9 Thermodynamics 1 3 s.h.

Students pursuing three semesters of courses common to all majors may encounter a delay in graduation because of scheduling problems for program courses that require sequencing or that are offered only once a year.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences requirements is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum. Students choose 16 semester hours of humanities and social science courses from approved departmental areas. A minimum of 6 semester hours of humanities course work must be chosen from one of the approved humanities departments and at least 3 of these 6 semester hours must be in advanced (100-level) course work. Social science courses in the industrial engineering major are specified. Students considering a major in this program should consult “Industrial Engineering” in this section of the Catalog for required social 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 social science or humanities electives even though they are offered through departments listed below.

Humanities course work is chosen from approved courses offered by University departments, programs, and schools: African American world studies, American studies, art and art history, Asian languages and literature, classics, communication studies, English, history, linguistics, music, philosophy, religion, theatre arts, and literature, science, and the arts. Advanced courses from any foreign language department also may satisfy the humanities requirements, as may other courses approved by the College of Engineering curriculum committee.

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.

Social science course work is chosen from approved courses offered by the following departments and schools: anthropology, economics, geography, journalism and mass communication, political science, psychology, social work, sociology, urban and regional planning, 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.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 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. They also 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 Program 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 and engineering courses 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 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 as 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 grade-point average of at least 3.50 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
The M.B.A. curriculum is designed for upper-level students; no previous 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. Specific information on the combined degree program for APT students is available in the Office of Undergraduate Programs in the College of Engineering and from 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 either in 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 should 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 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. 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 grade-point average of 2.00 or higher, 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 associate dean for undergraduate programs 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 or a minor 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 Office of the Registrar of their fulfillment of minor requirements when they apply for a degree. This assures that the minor designation is included on their transcript.

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:1 00), a management course (6J:100), a finance or engineering economy course (6F:100 or 57: 14), a computer course (6K:70), and a legal course (6J: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 grade-point average of at least 2.00 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 grade-point average of at least 2.00 in courses applicable to the minor. Courses to be counted toward the minor may not be taken pass/nonpass.

Cooperative Education and Internship Program

The cooperative education and internship program for engineering students, coordinated by Engineering Career Services, integrates academic work with practical experience in an organized program. Participating students spend 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.

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 internship option allows students to participate in the program for a single semester and/or summer session.

The cooperative education option ordinarily begins during or immediately following the sophomore year and continues until the beginning of the senior year, alternating work and academic periods. 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 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 advisor from the Undergraduate Academic Advising Center. With the advisors’ help, students select courses appropriate for the engineering program while they explore other fields of interest. Students meet frequently and regularly with their advisors for the intensive advising support they need as they evaluate their educational alternatives and plan their programs of study. The advisors’ 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 and 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 approval of the advising staff in the Office of Undergraduate Programs.

Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit they have earned toward the Bachelor of Science in Engineering.

Freshman—O to 29 semester hours earned toward the B.S.E.
Sophomore—30 to 59 semester hours earned toward the B.S.E.
Junior—60 to 89 semester hours earned toward the B.S.E.
Senior—90 or more semester hours earned toward the B.S.E.

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 (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>
</tr>
<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>
</tbody>
</table>

F (failing) 0

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, but averages displayed in University records are truncated so that they do not exceed 4.00.

Academic Probation and Dismissal

Students who do not achieve or surpass the following semester and University of Iowa cumulative minimum grade-point averages are placed or continued on academic probation.

Freshman—1.80
Sophomore—1.90
Junior—1.95
Senior—2.00

Students on academic probation are restored to good standing when their University of Iowa and semester grade-point averages equal or exceed those designated above.

The college reviews academic records for all students at the end of the fall and spring semesters. There is no review at the end of the summer session. Students are placed on probation, dismissed for unsatisfactory progress, or restored to good standing only at the end of the fall and spring semesters. Students who have been on academic probation and have not made reasonable academic progress are not permitted to continue their study without a written agreement stating specific expectations for their future performance. Details of the procedure are available from the Office of Undergraduate Programs.

Students who do not make satisfactory progress may be dismissed from the college. Those dismissed from the college for poor scholarship due to extenuating circumstances may appeal for a revocation of the dismissal. A student dismissed in January must submit a written appeal by the second day of spring semester classes. A student dismissed in May must submit the written appeal by June 15. Appeals should be addressed to the Appeals Committee, Office of Undergraduate Programs.

Students dismissed from the college for poor scholarship may appeal to re-enroll after an interval of at least one academic year. They must submit a written appeal for reinstatement to the Appeals Committee, Office of Undergraduate Programs. Arrangements must be made between March 1 and July 1 for reinstatement in a fall semester or between October 1 and December 15 for reinstatement in a spring semester. Details of the appeals procedure are available from the Office of Undergraduate Programs.

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 10 weeks of the semester. Only under compelling circumstances may courses be dropped after the 10th week, in which case special approval must be granted by the adviser, the course instructor, and the Office of Undergraduate Programs. Under no circumstance are students permitted to drop after the beginning of the scheduled final examination period. No course may be dropped with the grade of W more than twice.

Limits on 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. To curtail excessive registration and dropping of the same course, 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 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 is not removed from the record. Requests for such exclusions are made in the Office of Undergraduate Programs.

Withdrawal of Registration

Students who withdraw their entire registration must consult the academic counselor in the Office of Undergraduate Programs. A student on scholastic probation who withdraws registration at any time without good cause may not be permitted to enroll for the following semester without approval from the academic counselor. Withdrawal cards for students enrolled in the college are signed by the associate dean of Undergraduate Programs.

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 higher;
- 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 register as usual for the course that is to be repeated, then complete a second-grade option form at the Office of Undergraduate Programs during the first 12 weeks of the semester or the first six weeks of the summer session. (Both grades are counted in the UI grade-point average in instances where a student repeats a course unless the student follows the procedure stated above.)

Note: This form must be completed during the session in which the course is repeated.

Under the provisions of this option, the registrar marks the permanent record to show that a particular course has been repeated. Both grades remain on the permanent record, but only the second one is used in calculating the grade-point average and hours earned. The course must be repeated under the same circumstances and with the same grade option as it was taken the first time.

The second-grade-only option cannot be used to remove a grade of incomplete, which must be removed in the usual manner.

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.

Students with incomplete from the spring semester are exempt from completing the course during the succeeding session.

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 Office of Undergraduate Programs.

Credit by Validation

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 Office of Undergraduate Programs.

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 nonduplicate basis. Questions about CLEP exams and credits should be directed to the Office of Undergraduate Programs.

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 Office of Undergraduate Programs 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 Office of Undergraduate Programs either before or during the student’s first semester of enrollment in the college.

Satisfaction of engineering course requirements by transfer course work maybe approved by the Office of Undergraduate Programs if, on a course-by-course basis, there is a match in the content and level of the transfer courses, and if 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 Office of Undergraduate Programs 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 from the Office of Undergraduate Programs. Once students are enrolled in the College of Engineering, all course work they have taken at other institutions must be preapproved by the Office of Undergraduate Programs if credit for it is to be applied to meet engineering degree requirements.

By policy of Iowa’s State Board of Regents, a student may apply a maximum of 64 semester hours of transfer credit earned at a two-year college toward the 128 semester hours required for the B.S.E. However, transfer credit from a two-year school in excess of 64 semester hours is used in computing grade-point average and may be used to satisfy course requirements, even though the semester hours cannot be counted toward the total required for graduation. A grade of C- or higher is required in order for transfer credit to be applied toward a degree requirement.

Course Substitutions
For students in the College of Engineering, the substitution of an alternate course for a required course requires the approval of a petition. The petition form is available in the Office of Undergraduate Programs. 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 or a social sciences or humanities course, then it also must be approved by the associate dean who acts on behalf of the college curriculum committee. Substitutions for required engineering core courses should occur infrequently and only under compelling circumstances. Substitutions of courses that are required by the student’s department major are governed by the faculty of that department, and approval of these course substitutions is needed only from the faculty adviser and the department chair. All petitions must be forwarded to the Office of Undergraduate Programs for inclusion in the student’s permanent file.

Auditing Courses
Students in the College of Engineering may register for a course for zero credit (audit) with the permission of the course instructor and the adviser. The mark of R is assigned to students registered for zero credit if attendance and performance in the course are satisfactory; if unsatisfactory, the mark of W is assigned.

Courses completed with a mark of R do not meet any requirements nor do they carry any credit toward graduation. Auditing may not be used as a second-grade-only option.

To register for a course on an audit basis, students must obtain the instructor’s authorizing signature and their adviser’s signature and must register for 0 semester hours. To change registration from audit to credit or from credit to audit, a drop-add form is used. These changes must be made during the first three weeks of a semester or the first one-and-one-half weeks of a summer session.

Misconduct 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 to include the assignment of F for the course. When a course grade has been reduced to an F, the student may not drop the course or use the second-grade-only option to eliminate the failing grade.

At the beginning of each semester, course instructors individually announce and explain their policies on acceptable levels of student-student collaboration on graded work, which includes homework assignments, and lab or design projects. When a policy is violated, a zero is assigned for the total portion of the course grade allocated to the requirement in which the violation occurs. The instructor sends a written report of any disciplinary action to the office of the dean and the report is placed in the student’s file. Students are notified by the office of the dean of any disciplinary action reported and are informed of appeal procedures 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 Week, and sponsoring of a nationally prominent speaker during National Engineers’ Week. The organization also acts on collegewide matters 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 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 final step in the procedure is to pass the 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 the 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)

ICAEN is the Engineering College computer support department. It provides the college’s primary curricular computer support with a large network of high performance Hewlett Packard color graphics UNIX workstations and Apple Macintosh computers. Extensive commercial and public domain software supports the full range of engineering college classes. ICAEN provides the same type of computer hardware and software that students will use when they graduate and begin working as engineers. The college computer facilities are constantly updated in order to maintain the best support possible.

Engineering students and other students taking engineering courses are given an ICAEN account, which they keep during their tenure at the college. Their ICAEN account also provides engineering students with an electronic mail address and with access to the Internet and the World Wide Web. Five ICAEN computer labs with more than 300 networked computers provide an unusually high number of computer contacts hour. ICAEN user services provide extensive computer consulting support for the network’s users.

Engineering Electronics Shop

A full service electronics support facility for the Engineering College provides design, construction, repair, calibration, and preventive maintenance services for both teaching and research laboratories. There also is an extensive electronics parts supply store for engineering students and researchers.

Engineering Career Services

Engineering Career Services (ECS) provides services to all College of Engineering students and graduates. The center’s professional staff helps students explore, plan, and act on opportunities in an approach that focuses on lifelong career development.

The center offers resume referral services and arranges on-campus interview opportunities. It also provides individual advising, including resume and cover letter critiques, practice interviews, and help with networking, interviewing, and other job search skills.

The career resources library offers information on national and regional employers, current job openings (full-time, part-time, cooperative education, and internships), employer directories, and free career publications.

Students are encouraged to participate in opportunities such as internships and cooperative education both of which can enhance graduates’ career opportunities and success. Such experiences can begin as early as the completion of the student’s first year. For more information, see “Cooperative Education and Internship Program” in this section of the Catalog.

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 carried out at IIHR in six modern, well-equipped laboratories with total floor space exceeding 83,880 square feet. The institute conducts programs of teaching together with basic and applied research in the following areas: fluid mechanics (turbulent shear flows, vortex dynamics, ship hydrodynamics, and computational fluid dynamics); hydraulics (river hydraulics, computational hydraulics, hydraulic structures, and environmental hydraulics); cold-regions engineering (ice-related river hydraulics, ice mechanics, winter highways and maintenance, and ice modeling); water resources (hydrometeorology, water quality dynamics, and integrated watershed processes and modeling); and the history of hydraulics and fluid mechanics. IIHR maintains state-of-the-art research facilities, including an extensive ice-engineering laboratory and a surface meteorological station, and specialized equipment, such as particle image velocimetry (PIV) and laser doppler velocimetry (LDV) systems and a power challenge array supercomputer, which places IIHR among the top 30 academic supercomputer sites in the nation.

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. Undergraduates also have opportunities to participate in IIHR projects.

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 12 federal and 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.

The center supports a number of different computer systems and specialized computer resources. Its primary computing platform is Hewlett-Packard. Two HP9000 model 755/125
Advanced Driving Simulator. The IDS, the most
center hosts the Iowa Driving Simulator
to hardware and software,
workstations and virtual environment design.
are the Onyxes to
Sun and DEC workstations provide software
the second digit of the prefix identifies the
Engineering is preceded by a two-digit prefix
The first digit of the prefix is 5, which identifies
Course Numbering
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.
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
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 courses offered by each department are listed in the department’s section by discipline area, starting with the lowest-level course and proceeding to the highest-level course.
A brief description is included for each course. The prerequisites and corequisites listed in each course description are given in terms of the courses offered at this university. Students who do not meet these requirements but who have earned credit in equivalent course work from another institution should consult the course instructor if they have questions concerning their preparation for the course. Such students must obtain the instructor’s consent before registering for the course.
Engineering students may enroll in any course in the College of Engineering if they meet the course prerequisite and corequisite requirements. Undergraduates from other colleges may enroll in engineering courses only 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 students have 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 undergraduates from other colleges unless special permission is obtained from the assistant to the dean.
57000 Cooperative Education Training Assignment Engineering 0 s.h.
For engineering majors participating in the Cooperative Education Program; students register for this course during work assignment periods. Admission to Cooperative Education Program and consent of faculty adviser required.
57:1 Engineering Honors Seminar 0 s.h.
May be repeated. Admission to College of Engineering Honors Program and sophomore standing required.
57:2 Internship Engineering 0 s.h.
For engineering majors participating in the internship program; students register for this course during work assignment periods. Admission to internship program required.
57:5 Engineering I 3 s.h.
57:6 Engineering II 3 s.h.
57:7 Statics 2 s.h.
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: 22M:36 and 57:7.
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; frequency domain analysis using Fourier and Laplace transforms; time domain analysis using convolution. Prerequisites: 22M:41 and 57:6.
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.
Introduction to digital systems and engineering applications of microprocessor-based computers; C programming language; serial and parallel I/O; analog-to-digital and digital-to-analog conversion; system control using polling and interrupts; lab arranged. Sophomore standing required. Prerequisite: 57:6.
57:18 Principles of Electronic Instrumentation 4 s.h.
Principles of analog signal amplification, conditioning, filtering; operational amplifier circuit analysis and design; principles of operation of diodes, bipolar transistors, field effect transistors; discrete transistor amplifier analysis and design; analysis and design using computer simulations. I.C. fabrication technology; 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, shafts, pressure vessels; axial, transverse, bending, torsion, combined and buckling loads. Prerequisite: 57:7. Corequisite: 22M:41.
57:20 Mechanics of Fluids and Transfer Processes 4 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. Junior standing required. Prerequisites: 22M:40 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: 22B:39 and 57:21.
Adjunct assistant professor: Michael J. Visiting associate professor: David Wilder
Chair: Malcolm H. Pope
Associate professors: Kevin Dellisgerber, Edwin L. Dove, Eric Hoffman, Robert Tucker
Visiting associate professor: David Wilder
Assistant professors: Gagan Kamal, Maria Siebes
Adjunct assistant professors: Michael J. Magliocchetti (Ursurge, Oakland), Dennis McGowan (V.A. Hospital, Des Moines, Iowa), Richard McIay
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 health sciences, there has been greater need for them to become more familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering activity designed to bridge the gap between the life sciences and engineering—the biomedical engineering profession.

Students who complete the program may pursue traditional career opportunities in industry, such as those rooted in mechanical engineering disciplines, or they may pursue new areas of engineering, such as design and development of biomedical instrumentation, diagnostic aids, life-support systems, prosthetic and orthotic devices, and man-machine systems. Other career options are available in government (Food and Drug Administration, Environmental Protection Agency, National Institutes of Health, Veterans Affairs). Some biomedical engineering graduates elect to continue formal education in engineering, medicine, or law.

Several engineering college faculty members have joint appointments in the College of Medicine. Both biomedical engineering undergraduates and graduate engineering students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

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 chosen to satisfy the humanities and social science requirements of the College of Engineering.

FRESHMAN YEAR

First Semester

4:13 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.
51:90 BME Freshman/Sophomore Forum 0 s.h.
57:5 Engineering I 3 s.h.
*Humanities or social science elective 3 s.h.

Second Semester

4:14 Principles of Chemistry II 3 s.h.
4:16 Principles of Chemistry Lab 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
29:17 Introductory Physics I 4 s.h.
51:90 BME Freshman/Sophomore Forum 0 s.h.
57:6 Engineering II 3 s.h.

SOPHOMORE YEAR

First Semester

2:10 Principles of Biology I 4 s.h.
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.
51:91 Professional Seminar: Biomedical Engineering 0 s.h.
57:7 Statics 2 s.h.

Second Semester

22M:42 Vector Calculus for Engineers 3 s.h.
51:91 Professional Seminar: Biomedical Engineering 0 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.

JUNIOR YEAR

First Semester

51:40 Biological Systems Analysis I 3 s.h.
51:50 Biomechanics 3 s.h.
51:91 Professional Seminar: Biomedical Engineering 0 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.

Second Semester

22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
51:70 Biometrics I 4 s.h.
51:80 Biomedical Measurements I 3 s.h.
51:91 Professional Seminar: Biomedical Engineering 0 s.h.
57:21 Principles of Design I 3 s.h.
College core elective (see below) 3 s.h.

SENIOR YEAR

First Semester

51:85 Biomedical Engineering Systems Design 3 s.h.
51:91 Professional Seminar: Biomedical Engineering 0 s.h.
Biomedical engineering design elective 3 s.h.
Three technical electives (one in design) 9 s.h.
*Humanities or social science elective 4 s.h.

Second Semester

51:86 Biomedical Engineering Design Project 4 s.h.
51:91 Professional Seminar: Biomedical Engineering 0 s.h.
Two technical electives 6 s.h.
*Humanities or social science electives 6 s.h.

College 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.

Technical Electives

4:121 organic Chemistry I 3 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
6T:127 Entrepreneurship and New Business Formation 3 s.h.
51:140 Biological Systems Analysis I 3 s.h.
51:145 Biomedical Computer Systems 3 s.h.
51:148 Holographic Methods 3 s.h.
51:150 Graduate Biomechanics 3 s.h.
51:151 Intermediate Mechanics of Deformable Bodies 3 s.h.
51:152 Ergonomics of Occupational Injuries 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.
51:172 Polymers as 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.
53:133 Finite Element I 3 s.h.
55:32 Introduction to Digital Design (or equivalent) 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.
55:60 Control Systems 3 s.h.
55:88 Principles of Electrical Engineering Design 3 s.h.
55:148 Digital Image Processing 3 s.h.
55:164 Computer-Based Control Systems 3 s.h.
56:140 Ergonomic Design 3 s.h.
56:142 Human Factors Engineering 3 s.h.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>57:22</td>
<td>Principles of Design I (or equivalent)</td>
<td>3</td>
</tr>
<tr>
<td>58:40</td>
<td>Thermodynamics I</td>
<td>3</td>
</tr>
<tr>
<td>58:45</td>
<td>Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>58:145</td>
<td>Intermediate Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>58:160</td>
<td>Intermediate Mechanics of Fluids</td>
<td>3</td>
</tr>
<tr>
<td>99:110</td>
<td>Biochemistry</td>
<td>3</td>
</tr>
</tbody>
</table>

Other design, engineering, and science courses approved by the advisor.

### Biomedical Engineering Subtracks

Biomedical engineering majors are encouraged to pursue one of the following three subtrack curricula.

#### BIOMECHANICS/BIOFLUIDS

**Sixth Semester**
- 57:19 Mechanics of Deformable Bodies 3 s.h.

**Seventh Semester**
- 51:152 Ergonomics of Occupational Injuries 3 s.h.
- 57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
- 57:22 Principles of Design I (or equivalent) 3 s.h.

**Eighth Semester**
- Two of these:
  - 51:148 Holographic Methods 3 s.h.
  - 51:151 Intermediate Mechanics of Deformable Bodies 3 s.h.
  - 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 I 3 s.h.

#### BIOMATERIALS

**Sixth Semester**
- 57:19 Mechanics of Deformable Bodies 3 s.h.

**Seventh Semester**
- 51:152 Ergonomics of Occupational Injuries 3 s.h.
- 51:173 Metals as Biomaterials 3 s.h.
- 57:22 Principles of Design II (or equivalent) 3 s.h.

**Eighth Semester**
- Two of these:
  - 51:155 Cardiovascular Biomechanics 3 s.h.
  - 51:160 Biotransport Processes 3 s.h.
  - 51:172 Polymers as 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.
  - 58:110 Computer-Aided Engineering 3 s.h.

#### BIOELECTRICAL AND BIOSYSTEMS

**Sixth Semester**
- 57:12 Linear Systems Analysis 3 s.h.

**Seventh Semester**
- 51:180 Biomedical Measurements I 3 s.h.
- 51:185 Physics and Analysis of Biomedical Images I 3 s.h.
- 55:32 Introduction to Digital Design 3 s.h.

### Graduate Programs

The aim of graduate study at both the M.S. and Ph.D. levels is to educate students in the disciplines of biomedical engineering more deeply and broadly than is possible at the B.S. level. The goal is to enable students to use contemporary methods at an advanced level during a professional career in engineering design, development, and research.

Each student's course of study is based on individual background and career objectives, and sound academic practice. Department faculty members have teaching and research expertise in areas related to biomechanics, cardiovascular and fluid biomechanics, biomaterials, bioinstrumentation, biosystems, and other allied fields.

An individual program for each student may be developed from courses offered by the biomedical engineering department and other departments, especially mechanical engineering, electrical engineering, physiology, mathematics, and biological sciences. M.S. students who want a more general program may combine emphases, while those who want some specialization in any particular field may accommodate these preferences through the combination of departmental courses and appropriate electives from other departments of the College of Engineering and the University.

Ph.D. programs may center on any one of the previously described areas through the choice of appropriate course work and research topic.

### Master of Science

The M.S. in biomedical engineering requires a minimum of 30 semester hours of course work and research. Students may choose either a thesis or nonthesis program; the latter must include at least 6 semester hours of 200-level courses. Students who choose the thesis program may count between 6 and 9 semester hours of credit for thesis research and writing toward satisfying the 30-semester-hour limit. Either degree may be a terminal degree or an intermediate step toward a Ph.D.

A tentative plan of study for each student is determined through consultation with an adviser. An M.S. committee of at least three graduate faculty members, including at least two on the biomedical engineering faculty, is appointed by the dean of the Graduate College. The student's plan of study is reviewed by the committee before the student has completed 18 semester hours of course work. The plan of study is then submitted for review to the department chair.

To earn the M.S., students are required to attain a grade-point average of at least 3.00 on a minimum of 30 semester hours of graduate work and successfully complete the final examination administered by their committee.

The requirements for the M.S. may be completed in one calendar year. However, students with assistantship duties and/or other constraints may need up to two calendar years to complete the degree.

Candidates for either of the M.S. degrees must have satisfactorily completed the following courses or their equivalents as undergraduates or graduates.

#### Biomedical Images I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>51:140</td>
<td>Biological Systems Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>51:180</td>
<td>Biomedical Measurements I</td>
<td>3</td>
</tr>
<tr>
<td>51:185</td>
<td>Physics and Analysis of Biomedical Images I</td>
<td>3</td>
</tr>
</tbody>
</table>

### Doctor of Philosophy

The doctoral program, including acceptable transfer credits, requires a minimum of 72 semester hours of graduate work. Of these 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 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

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 grade-point average of at least 3.25 on all graduate work done at The University of Iowa.
Upon completion of the course work specified in the plan of study and with the required grade-point average and the 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. generally can be completed in about three years beyond the master’s degree.

Students who have earned a baccalaureate or postbaccalaureate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences, with a grade-point average of at least 3.00 and an acceptable score on the Graduate Record Examination (GRE) 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 and GRE General Test scores. Students on conditional status must achieve regular status within 8 semester hours of initial registration by attaining a grade-point average of at least 3.00 at The University of Iowa and regular acceptance by the department faculty. Students who do not meet these requirements are subject to dismissal.

Reference letters, research interests, previous graduate study grade-point average, and other factors also may be considered in making admission decisions.

Financial Assistance

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Direct inquiries should be made to the departmental chair.

Special Facilities and Laboratories

Required Course Laboratories

There are two laboratories associated with two required undergraduate courses: Biomaterials I and Biomedical Measurements I.

The Biomaterials Laboratory is equipped to test mechanical and thermal properties of biomaterials and thin sectioning of hard tissues and prostheses for histology. This 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 H.

Image processing classes are taught in the Image Engineering Science Laboratory. Jointly sponsored by the Departments of Biomedical Engineering and Electrical and Computer Engineering, this laboratory is equipped with engineering workstations arranged to facilitate collaborative learning.

Research Facilities and Laboratories

APPLIED MECHANICS LABORATORY

This laboratory contains Laser-based micromechanics apparatus for study of viscoelastic and microelastic behavior of materials over an 11-decade range of effective frequency from 10^-1 Hz to 10 kHz in torsion. This apparatus is based on a laser interferometric approach to the measurement of specimen deformation and an electromagnetic method to apply torque to the specimen. This apparatus is also capable of static and dynamic bending experiments.

Other equipment includes optical microscopes with reflected light and differential interference contrast capability; piezoelectric transducers for torsion, bending, and compression; laboratory microcomputers (Macintosh Hci with Labview); composite piezoelectric oscillators for dynamic ultrasonic measurements; photoelastic bench; function generators; analog and digitally synthesized, bipolar power amplifier; frequency counter/digital timer; temperature controllers, cooling probe, FTS Systems, furnaces; analog and programmable digital control; and ultrasonic apparatus for longitudinal and shear waves.

ANESTHESIA SYSTEMS LABORATORY

The Anesthesia Systems Laboratory is equipped to perform studies of cardiovascular and respiratory system responses to new volatile and injectable anesthetics. The laboratory houses computers systems designed for real-time data collection and experimental control. Equipment includes a mass spectrometer, volatile inhalation gas analyzer, arterial blood gas analyzer, anesthetic delivery systems, and transducers for measuring biopotentials, pressures, and fluid flows. Also available are all of the necessary surgical supplies and equipment for acute and chronic experimentation.

BIOPHYSICS LABORATORY

This laboratory is centered around a feedback-controlled flow model of the coronary circulation. Fluid dynamic signals are obtained with ultrasonic flowmeters, pressure transducers, and appropriate amplifiers. Analog tunable lowpass filters are available for signal conditioning, and data can be digitized into two 386 25MHz computers through Labmaster A/D boards. The computers also are used for data analysis and are connected to Ethernet for data transfer to and from other computers on campus.

Other major equipment includes an electronic balance, Astro-Med 8-channel strip chart recorder, microtip pressure transducers, a 4-channel PCM tape recorder, function generator, power supply, and capillary viscometer. A terminal is available with a direct connection to the BME Vaxcluster network through the department’s Micro Vax.

BIOMATERIALS LABORATORY

The Biomaterials Laboratory is equipped to characterize implant materials and biological tissues for their mechanical and thermal properties. Hard tissue histological slide preparations, for both micrograph and optical, can be made for the study of interactions between bone and implant interactions. Metallographic sample preparations can be made and analyzed under optical microscopes.

The laboratory contains MTS (model 812) materials testing machine with recorder and controller; automatic data acquisition and process computer dedicated to the MTS machine; differential scanning calorimeter (Perkin-Elmer DSC-4 model); Omega x-ray generator with microdradiographic attachment; Bronwill thin sectioning saw; Buehler Isomet thin sectioning saw; Buehler metallographic and petrographic grinding and polishing wheels; IR, polarizing, reflection research type microscopes; temperature-controlled bath; Lindberg tube furnace; strain gage attachment and measurement devices; videotape and play equipment; and conventional and vacuum oven with a diffusion pump.

BIOMECHANICS LABORATORY

This laboratory is equipped for investigation of the biomechanics of the spine, particularly head and neck trauma and problems related to low back pain. For example, the Selspot II system, a fully-automated three-dimensional motion measuring device, and a force plate are used to study the kinetics of lifting. The Selspot II system also is used in analyzing stability aspects of the ligamentous spine following surgery. An electrodynamics vibrator is available for recording human response in a vibration environment, and there are other devices available for use in investigating the mechanics of head and neck trauma and the protective role of helmets.

BIONSTIMULATION COMPUTING LABORATORY

This laboratory houses a local area network of seven 486-based Hewlett-Packard computers (IBM-AT compatible) tied to the college’s ICAEN system. Each workstation is centered around a computer with two floppy disk drives, a data translation DT2808 analog input/output board, and a Hercules compatible graphics monitor. Each machine is equipped with real-time data collection software and X-window software.

GAIT LABORATORY

This laboratory contains a 30-foot carpeted walkway and equipment for automated acquisition of three-dimensional kinematic and kinetic data characterizing locomotion. Since the system uses strobed infrared light and reflective markers, experiments can be conducted in ambient room lighting.

HEMODYNAMICS LABORATORY

The major equipment in the biortransport laboratory consists of a microviscometer with a constant temperature bath, a microcomputer-driven mock circulatory system that simulates physiological pulsatile flow, Millar catheter pressure transducers, electromagnetic flow meter and probes, a two-channel laser Doppler anemometer, and an LSI 11/73 computer with A/D data acquisition and reduction and model human aortic and left ventricular flow chambers. A high-speed movie camera and photographic visualization equipment also reside in the lab. Capabilities of the laboratory include heart valve pulsatile functionresting, contraction bubble visualization and analysis, laser Doppler
velocity measurement, and qualitative flow visualization.

**HOLOCOPY LABORATORY**

The Holography Laboratory is a facility of the Iowa Center for Laser Science and Engineering. It contains lasers (helium neon: 15 mW, TEMoo), 2 feet, Newport instant holographic camera and controller; optical components — lenses, beamsplitters, prisms, spatial filters, gratings, shutter, shutter controller; plate holders (two standard and one real-time), lens mounts, translation tables, tilt tables, and rotation stages, polarization optics.

**IMAGE PROCESSING LABORATORY**

This laboratory is equipped to perform the sophisticated image processing procedures required for varied investigations. Its equipment centers around a Vax cluster of 2 VAX workstations, (Vaxstation 4000/90 with framegrabber and Vaxstation 4000 LC), a Macintosh Ici, and one Micro Vax H, to which is connected a Gould/DeAnza IP8400 vector image processor, a video graphics copy device, a video camera that is used as a densitometer, and various other peripherals. The cluster is connected to the University-wide broadband communications system through which data can be transferred from ICAEN, all Academic Computing machines, all hospital computers, and off-campus computers (such as the national supercomputer system).

Research equipment available by permission of the laboratory director includes a Macintosh Ix with attached NEC PC-VCR, video copy printer, and IPLab framegrabber and associated image processing software.

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.

**PHYSIOLOGICAL SYSTEMS LABORATORY**

The Physiological Systems Laboratory is located on the University’s Oakdale Research Campus. It is equipped to measure physiological variables in live subjects: blood pressure, heart rate, ECG, EMG, ENG, blood flow rates, respiratory flow rates, blood gases, oxygen and carbon dioxide concentrations, and so forth. Various data collection devices are available, including an eight-channel recorder and a microcomputer used for data collection, reduction, and experimental control. The laboratory also contains bridges, filters, and amplifiers for signal conditioning as well as surgical supplies and facilities.

**IOWA SPINE RESEARCH CENTER BIOMECHANICS LABORATORY**

The spine biomechanics laboratory is fully equipped to perform studies of tissue and/or specimen response to mechanical loads. An

MTS Bionix machine (with extended columns) servohydraulic testing machine permits application of uniaxial tension or compression in concert with axial torsion under displacement (rotation) or load control. In addition, the laboratory has a large base plate with T-slots, grips, an environmental chamber, and an independent controller with specialized test control and data acquisition and analysis routines. An MTS Model 810 servohydraulic testing machine permits uniaxial tension or compression under displacement, load, or strain control. A bank of fatigue testing machines is planned. An apparatus for testing spinal motion segments for their balance point and buckling behaviors also is available.

**VIBRATION TESTING LABORATORY**

A complete system of modern vibration measuring as well as analyzing equipment is available to researchers using the Vibration Testing Laboratory. There also is a bench designed to evaluate the chipping efficiency of pneumatic hammer. Work conducted in the laboratory includes investigations of the problems associated with vibration-induced white finger (VWF), evaluation of the efficiency of industrial power tools (hand-held), testing of vibration attenuating devices and so forth. The laboratory occupies an isolated location at the Oakdale Research Campus so that noise generated during testing at the facility will not interfere with other researchers’ work.

**Courses**

**Special Topics**

51:000 Cooperative Education Training Assignment Biomedical Engineering 0 s.h. Biomedical engineering students participating in the Cooperative Education Program register for this course during work assignment periods; 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 Biological Systems Analysis I 3 s.h. Application of principles of linear system control theory to analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. Offered fall semesters. Prerequisites: 22M:41, 57:6, and 72:154, 51:70 Biomaterials I 4 s.h. Properties, biocompatibility characteristics, performance requirements of materials for implants. Offered spring semesters. Prerequisite: 4.14. Corequisites: 72:154. 51:30 Biomedical Measurements I 3 s.h. Concepts of analog and digital circuit design, with emphasis on circuits for biomedical applications using operational amplifiers, ac/vf filter, data acquisition, conversion and interface to microcomputers; patient safety; clinical circuits; laboratory project. Offered spring semesters. Prerequisites: 51:40, 57:17, and 57:18. Corequisite: 72:154. 51:85 Biomedical Engineering Systems Design 3 s.h. Design of system elements; prosthetics; materials; case study of biomechanical system examples; computer-aided design methods, design/development. Offered fall semesters. Prerequisites: 51:40, 57:21. Corequisites: 51:70 and 51:80. 51:86 Biomedical Engineering Design Project 4 s.h. Creative design projects, usually involving actual current problems in biomedical engineering; includes interdisciplinary, including both engineering and health science faculty cooperation. Offered spring semesters. Prerequisites: 51:85 and senior standing.

51:90 Biomedical Engineering 4 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. Sophomore or higher standing required.

51:98 Individual Investigations: Biomedical Engineering 3 s.h. Individual projects for biomedical engineering undergraduate students, such as laboratory study, engineering design projects, analysis and simulation of an engineering system, computer software development, research. 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, biomechanics, vibration. Graduate standing required.

51:148 Holographic Methods 3 s.h. Concepts of diffraction and wavefront representation; in-line and off-axis holograms; methods for producing white-light viewable holograms, including Benton, open aperture, and Dennisik holograms; applications of holography in experimental deformation analysis of solids, fluid flow visualization, display and image processing. Prerequisite: 29:18 or 29:17 or 29:130 or equivalent.

**Biomaterials**

51:171 Intermediate Biomaterials 3 s.h. Property structure relationship of biological and implant materials; their interactions in vivo condition.

51:172 Polymers as Biomaterials 3 s.h. Structure property relationships and in vivo and in vitro performances of polymers used to manufacture implants and other devices. Prerequisite: 51:70 or equivalent.

51:173 Metals as Biomaterials 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 Biomaterials 3 s.h. Properties structure relationship of ceramics and glasses used to fabricate implant materials; their interactions in vivo condition. Prerequisite: 51:70 or equivalent.


**Biomechanics/ Biofluids**

51:50 Biomechanics 3 s.h. Principles of solid mechanics applied to analytical, experimental investigation of biological systems; emphasis on applications in kinesiology of human musculoskeletal system. Prerequisites: 22M:42, 57:10, and 72:154.

51:150 Graduate Biomechanics 3 s.h. Principles of solid mechanics applied to analytical, experimental investigation of biological systems; emphasis on applications in kinesiology of human musculoskeletal system. Prerequisites: 72:10, 57:19, and graduate standing. Corequisites: 72:154.

51:151 Intermediate Mechanics of Deformable Bodies 3 s.h. Application of equilibrium analysis, strain-displacement relations, constitutive relationships to problems in biomechanics; elementary plane elasticity problems. Offered fall semesters. Prerequisite: 57:19. Same as 55:140, 58:150.

51:152 Ergonomics of Occupational Injuries 3 s.h. Epidemiology, surveillance systems, biomechanics, physiology, legal aspects, and cost control. Prerequisite: 51:50 or 51:150.

51:154 Biomechanics of Aging 3 s.h. Techniques to quantify biomechanical/electrical characteristics of hard, soft tissues; kinesetics, kinetics of body segments during daily activities, effect of age on hard and soft tissues; joints, nervous system, hearing, vision, cardiovascular system, spine; surgical procedures to alleviate pain, restore joint function; preventive measures to reduce fracture. Prerequisite: 57:10. Corequisite: 72:154.
51:155 Cardiovascular Biomechanics 3 s.h.
Anatomy and physiology of the human circulatory system, pressure flow relationships in arteries, elastic properties of the arterial wall, pulsatile flow dynamics, flow past valve prostheses, flow through capillaries, force-velocity studies of heart muscle, force deformation analysis of left ventricle, application of finite element models of left ventricular dynamics. Prerequisites: 57:19, 57:20, and 72:154.

51:160 Biobehavioral Processes 3 s.h.
Application of momentum, heat, and mass transfer principles to biochemical systems, with emphasis on human beings: fluid mechanics of two-dimensional flows in the cardiovascular system, heat exchange between a biological system and the environment, mass transfer in membranes. Prerequisites: 57:20 and 72:154.

51:165 Cardiovascular Systems and Aging 3 s.h.
Physiology and quantitative analysis of the cardiovascular system, effect of aging on its physiology, morphology, functioning, experimental, systems, and finite element analyses of the effects of aging applied to myocardial and vascular material properties, vascular mechanics and reactivity, pulmonary and arterial system dynamics.

51:250 Advanced Biomechanics 3 s.h.
Anatomy of the human musculoskeletal system, biomechanical basis of joint degeneration, and evaluation techniques; mechanical properties of hard and soft tissues, kinematics, kinetics of human joints, including those for locomotion; experimental determination of joint forces, spinal biomechanics, design, analysis of artificial joints. Prerequisites: 51:50 and 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; 3-D 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 evaluation techniques; mechanical properties of spinal ligaments, kinematics and kinetics of the spine, mathematical models of spine, selection, braces for spinal stabilization, surgical procedures for internal fixation. Prerequisites: 51:50 and 51:150.

51:257 Theory of Viscoelasticity 3 s.h.
Linear theory of viscoelasticity; modeling materials; Boltzmann superposition principle; linear functional, thermodynamic foundations; time-temperature superposition principle; boundary and initial value problem. Prerequisite: 51:151. Same as 53:247, 58:257.

Bioelectrical 51:140 Biological Systems Analysis II 3 s.h.
Application of modern control and systems analysis to study of biological systems; development of Identification and simulation techniques utilizing linear and nonlinear, deterministic and stochastic dynamic responses of physiological systems; selected aspects of the cardiological system used as examples and problems. Prerequisites: 51:40 and 72:154.

51:141 Graduate Biological Systems Analysis 3 s.h.
Application of principles of linear system (control) theory to analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. 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 data: FFT, auto and cross correlation, coherent averaging, FIR and IIR filtering. 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; application of electronic transducers to measure temperature, flow, force, strain, image processing; computer applications. Prerequisite: 51:80 or 51:181.

51:181 Graduate Biomedical Measurements I 3 s.h.
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.
Introduction of imaging with matter, physical principles of medical imaging, CT, MR, MRI, PET, medical image reconstruction (back projection), analysis (digital processing), clinical interpretation. Prerequisites: 51:40 or 51:141 of equivalent; corequisite 51:50 or 51:113 or equivalent; and 51:17 or equivalent.

51:186 Physics and Analysis of Biomedical Images II 3 s.h.
Applications of modern control and systems analysis to study of biomedical problems; system representation, spectral 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, Research
51:190 Readings in Biomedical Engineering 3 s.h.
For graduate students with nongraduate 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.

51:198 Individual Investigations: Biomedical Engineering 3 s.h.
Individual projects for biomedical engineering graduate students, supervised by faculty. Graduate standing and consent of adviser required.

51:199 Research: Biomedical Engineering, M.S. Thesis 3 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 adviser required.

51:299 Research: Biomedical Engineering, Ph.D. Dissertation 3 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. with thesis in biomedical engineering. Consent of adviser required.

CHEMICAL AND BIOCHEMICAL ENGINEERING

Chair: Jonathan S. Dordick
Professors: J. Keith Beddow, Gregory R. Carmichael, Ravindra Datta, Jonathan S. Dordick, David G. Khmelnitsky
Associate professors: Victor J.G. Rodgers, John M. Wiencz
Assistant professors: David W. Murhammer, Tonya L. Peppers
Adjunct assistant professors: Audrey Butler, Yuri L. Khmelnitsky
Undergraduate degree: B.S.E. in Chemical Engineering
Graduate degrees: M.S., 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 production 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 solid 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 at the leading edge of technology. It emphasizes fundamental concepts, problem solving, laboratory techniques, and 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 and industrial experience participating in a cooperative education training assignment.

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**

- 4:18 Chemical Science 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 (101, 1, 2, or 3) 4 s.h.
- *Social science elective 3 s.h.

**Second Semester**

- 4:19 Chemical Science II 3 s.h.
- 4:20 Chemical Science Laboratory 2 s.h.
- 22M:36 Engineering Calculus II 4 s.h.
- 29:17 Introductory Physics I 4 s.h.
- 52:90 Freshman Seminar: Chemical and Biochemical Engineering 0 s.h.
- 57:6 Engineering II 3 s.h.
- *Social science elective 3 s.h.

**SOPHOMORE YEAR**

**First Semester**

- 4:121 Organic Chemistry I 3 s.h.
- 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.
- 52:41 Process Calculations 3 s.h.
- 52:42 Momentum Transport 3 s.h.
- 52:91 Professional Seminar: Chemical Engineering 0 s.h.
- 57:7 Statics 2 s.h.

**Second Semester**

- 4:122 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.
- Humanities elective 3 s.h.

**JUNIOR YEAR**

**First Semester**

- 4:131 Physical Chemistry I 3 s.h.
- 22M:72 Elementary Numerical Analysis 3 s.h.
- 52:44 Heat and Mass Transfer Operations 4 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.
- 4:135 Physical Chemistry Laboratory 2 s.h.
- 22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 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 Lab 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 Lab 11 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, environmental engineering technologies research, separation and bioseparation processes, biochemical engineering and applied biocatalysts, and particulate material processing sciences.

**Catalyst and Reactor Design**

Within the general field of kinetics, catalysis, and reaction engineering, research is being conducted in the areas of heterogeneous, homogeneous, supported molten-salt catalysis and supported molten-metal catalysis; gas-solid reactions; modeling and analysis of heterogeneous reactors; and design of novel reactor-separators, including membrane and catalytic distillation reactor-separators. Catalytic routes are being developed for fuels and chemicals from renewable resources, e.g., biomass ethanol.

Another focus of catalyst research is the design of hybrid catalysts with improved selectivity at milder conditions, needed for processes that are environmentally friendlier and less energy intensive. Also, fuel cells are being developed for cogeneration of value-added chemicals and electricity.

**Environmental Engineering and Technologies**

Contamination of the environment in which we live and work is a major problem facing today’s engineers. The Department of Chemical and Biochemical Engineering has an active research program in the environmental areas of air pollution, atmospheric chemistry, environmental change, bioremediation, and the design of new environmentally compatible technologies. Particular emphasis is placed on the chemistry and physics of local, regional, and global air-pollution problems. Research in support of this activity includes high-speed computing and detailed sensitivity analysis.

This work involves the Center for Global and Regional Environmental Research, an interdisciplinary research consortium that brings together University scientists and scholars from more than 20 disciplines, including chemistry, civil and environmental engineering, geography, geology, law, and medicine. The center’s chief area of concern is environmental change.

**Separation and Bioseparations Processes**

Research at The University of Iowa is devoted to developing better understanding and new techniques in the areas of separation and bioseparation processes. In particular, researchers are investigating a novel technique in ultrafiltration and microfiltration called transmembrane pressure pulsing. In this process, high frequency oscillating pressure across the membrane enhances the various fluxes through the membrane. In addition, electron paramagnetic resonance spectroscopy is being used to analyze temporal membrane fouling.

Another new device is being investigated for preparative continuous electrophoresis. Electrokinetic dispersion, photosensitive membranes for gas separation, and enzymatic reactor-separators also are being investigated.

Theoretical research is being conducted for developing generalized models of transport in porous media and in membranes involving various transport mechanisms and driving forces.

**Biochemical Engineering and Applied Biocatalysts**

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.
Novel rotating wall vessels developed at NASA are being used to simulate in vivo conditions with human prostate cancer cell lines. A major component of this research is the development of near-infrared spectroscopy for bioreactor monitoring, which will be used to monitor nutrients and byproducts noninvasively in real-time.

The 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 Biocatalysts 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; GC’s (capillary and packed capabilities); an FPLC; several spectrophotometers; a spectrofluorophotometer; 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.

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 residence credit may not exceed 8 semester hours, but 6 semester hours maybe completed in residence at another recognized graduate college or through the Guided Correspondence Study Program at The University of Iowa. 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 M.S., students are expected to maintain a grade-point average of at least 3.00. 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.

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 transport phenomena, a course in reaction engineering, and a thermodynamics course or bio-related course (e.g., 32:180 Advanced Biochemical Engineering), as well as seven additional courses. All must earn at least 72 semester hours of graduate credit. Ph.D. candidates are expected to maintain a grade-point average of at least 3.25.

All doctoral students are required to pass a qualifying examination and a written and oral comprehensive examination prior to candidacy for the degree. The Ph.D. comprehensive examination is the presentation and defense of the candidate’s Ph.D. proposal. These examinations are arranged by members of the examining committee. The examinations may be repeated at the discretion of the committee. The rules for the comprehensive examination are published in the manual of the Graduate College. There is no foreign language requirement. A final examination, which is a defense of the thesis, completes the doctoral program.

Admission

Full admission to graduate study is granted to students who have a B.S. in chemical engineering with satisfactory grades from a recognized American college or university. Graduates of foreign universities also are accepted, depending on evaluation of their records. Admission to the graduate program usually requires a grade-point average of at least 2.80. Students who have not fulfilled the above requirements may be granted conditional admission to the M.S. program, with approval from the chair of the chemical and biochemical engineering department.

Applicants should take the verbal and quantitative parts of the Graduate Record Examination (GRE) General Test; scores should be submitted with the application. Graduate courses in chemical and biochemical engineering are designed for students who have an undergraduate background in chemical engineering. However, exceptional students from other areas also may apply for admission to the M.S. or even the Ph.D. program in chemical and biochemical engineering. Such students need to take certain undergraduate courses as background so they can perform in the graduate courses with minimum difficulty. Since these undergraduate courses are taken as makeup 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 mult-capacitance processes, approximations of mult-capacitance 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. Major research equipment in and available to the department is summarized 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. They also provide access to the college’s Computer-Aided Engineering Laboratory. The department is networked to the University’s Central Research Facility, devoted to molecular modeling, and to the GIS laboratory of the Center for Global and Regional Environmental Research.

The department also is connected to the Iowa Computer-Aided Engineering Network, which includes Hewlett-Packard workstations augmented with Apple Macintosh personal computers. The department has access to the University’s central research facility in high-speed vector computation. This facility has Encore Multimax and Alliant FX/8 mini-supercomputers and provides nodes for external links for access to supercomputers.

Catalysis and Reaction Engineering Facilities

A variety of equipment is available for the study of catalysis and reaction engineering. Techniques currently available include chemisorption and physiosorption (BET), microbalance, mass spectrometer system, mercury porosimetry, gas chromatography, fourier transform infrared spectroscopy (FTIR), access to X-ray diffraction, scanning electron microscopy (SEM), and transmission electron microscopy (TEM), a variety of reactor systems including a Betty reactor, a Parr reactor, a membrane reactor-separator for homogeneous catalysis, a porous-walled reactor-separator, a slurry reactor, and catalyst preparation facilities. Also available are central research facilities such as the High-Field Nuclear Magnetic Resonance Facility and the Electron Microscope Facility.

Separation and Bioseparation Processes

Equipment available for the study of separation processes includes a large-scale, continuous 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 Biocatalysts

Facilities in the Biochemical Engineering Laboratory include a three-liter agitated bioreactor and a 6-liter airtight fully controlled bioreactor, gas and liquid chromatography, UV-Vis spectrophotometers, centrifuges, carbon dioxide incubators, Class II-A safety cabinets, microscopes, a 50-micron particle counter, rotary shaker, autolave, 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 Biocatalysts

The Laboratory of Applied Biocatalysts 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 microfuges, and a freeze dryer.

Air Pollution Modeling and Visualization

The Geographic Information Systems (GIS) Laboratory provides state-of-the-art computer hardware and software for management, analysis, and visualization of environmental data. The equipment includes Macintosh and advanced UNIX workstations with more than 30 gigabytes of on-line hard disk and optical disk storage. Additional peripherals include a 36-by-48-inch digitizing tablet, a CD-ROM drive, a DAT tape drive, a laser printer, a color graphics printer, and several X-terminals. A local area network links the workstations both to each other and to the campus-wide network, through which the laboratory accesses University mainframe computers and other on- and off-campus computing resources. A variety of software packages and programming languages, including ARC/INFO and GRASS, NCAR Graphics and S-Plus, and Spysglass, are available for data analysis and display.

The GIS laboratory also uses an SGI-Onix multiprocessor system with 8 processors. Each processor is an MIPS R4000 running at 150MHz. It has 512 megabytes of memory and 2 gigabytes of local disk space. The operating system is IRIX 5.3. Some of the implementations use the native IRIX support for parallel programming, others use MPI (Message Passing Interface). Some automatic tools for generating parallel MPI programs using the SUFI compiler (Stanford University intermediate format) are under development. A recent acquisition is an SGI Power Challenge machine that has 16 R4400 processors running at 200MHz with 512 megabytes of memory and 18 gigabytes of local disk space that runs IRIX 6.1.

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 periodic registration provides a record of participation in the program on the student's permanent record. Admission to Cooperative Education Program and consent of co-op faculty advisor 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 applications. Prerequisite: 22M:56.

52:45 Chemical Engineering Thermodynamics
3 s.h.
Applications of thermodynamic principles to chemical and physical processes; prediction of material properties; phase equilibria and chemical equilibrium applied to mixtures and reacting systems. Prerequisite: 52:41.

52:47 Unit Operations Lab 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, and 52:44.

52:48 Unit Operations Lab 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.
Application of transport phenomena, thermodynamics, chemical kinetics to study of safety, health, loss prevention; government regulations, toxicology/industrial hygiene, relief sizing, runaway reactions, toxic release and dispersion models, source models, fires and explosions, risk assessment, hazard identification, case studies and accident investigation, incorporation of safety into design; laboratory experiments. Prerequisites: 52:42 and 52:44.
Corequisite: 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
at.
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 advisor 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 component systems, behavior of real fluids, mathematical techniques for solution thermodynamics. Prerequisite: 52:43 or graduate standing.

52:118 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. Prerequisite: 52:43 or graduate standing.

52:147 Modeling Analysis
3 s.h.
Numerical analysis applied to transport phenomena, chemical reactions, radiation design; emphasis on model formulation and numerical solution; ordinary and partial differential equations. Consent of instructor required. Same as 53:160.

52:195 Contemporary Topics: Chemical and Biochemical Engineering
arr.
Topics or study areas not offered in other chemical and biochemical courses: global climate change, novel separations, advanced numerical methods, and so forth based on faculty and student interest. Senior standing required.
52:230 Colloid and Interfacial Phenomena 3 s.h.
Introduction to fluid fluid, solid fluid interfaces and colloid science, interface thermodynamics, rheology, DLVO theory, measurement techniques.

52:285 Advanced Chemical Process Control 3 S.h.
Mathematical techniques for modeling and controlling multiple variables in chemical processes: topics in dynamic models, including lumped parameter and distributed parameter systems.

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, biocatalyst design, bioseparations, formulation and sterilization of growth media, commercial applications of biotechnology. Prerequisites: 4:16, 4:52, and 22M:36.

52:180 Advanced Biochemical Engineering 3 s.h.
Biochemical engineering design of bioreactor/fermentors, sterilization procedures, process scale-up, medium development, enzyme kinetics, transport phenomena, and mathematical modeling. Prerequisite: 52:108.

52:181 Bioseparations 3 s.h.
Introduction to separation/purification techniques in biochemical engineering; filtration, centrifugation, chromatography, extraction, electrophoresis, crystallization, and cell disruption for intracellular product recovery. Prerequisite: 52:108 or consent of instructor.

52:247 Enzyme Technology 3 s.h.
Application of enzymes in biotechnology; enzymes as commercial biocatalysts; immobilized enzyme technology; isolation, purification, stabilization of enzymes; enzyme reactors; mechanisms of commercially important enzymes; enzymatic catalysis in unusual environments; catalytic antibodies and ribozymes. Prerequisite: 52:180.

52:275 Perspectives in Biocatalysts 1 s.h.

52:280 Engineering Aspects of Animal Cell Culture
Applications of animal cell culture (tissue and mammalian) in biochemical engineering, with emphasis on recombinant protein synthesis; special considerations of animal cell cultures (e.g., sensitivity to hydrodynamic stress); scale-up of attachment dependent and attachment-independent cell cultures, medium development, hybridoma cultures, protein processing in animal cells. Prerequisite: 52:180 or consent of instructor.

Mass Transfer
52:240 Diffusional Mass Transfer 3 s.h.
Fundamentals of binary and multicomponent diffusional mass transfer processes including mass transfer in liquid and turbulent flows. Prerequisite: 52:144.

Environmental Engineering
52:152 Environmental Chemistry I 3 s.h.
Principles of general physical, organic chemistry applied in water and air systems; emphasis on qualitative and quantitative understanding of chemical kinetics and equilibrium; acid-base reactions, complex formation, precipitation, dissolution, oxidation-reduction reactions, organic nomenclature. Prerequisite: 4:14. 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 alternative 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.
Principles of chemical processes affecting atmospheric trace gas and pollutant cycles; emphasis on atmospheric photochemistry, aerosol science, major sources, removal processes. Consent of instructor required. Same as 53:163.

Reaction 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, reversible and irreversible single reactions; parallel, series, and mixed reactions; temperature and 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. Prerequisite: 52:43.

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 measurement, pumps, agitation. Prerequisite: 52:44 and 52:43.

52:44 Heat and Mass Transfer Operations 4 s.h.
Mechanisms of diffusional and convective mass and heat transfer, design of heat exchanger, evaporation, distillation, extraction, absorption, leaching, humidification, adsorption, drying, ion exchange processes. Prerequisites: 4:131, 52:42, and 52:43.

52:144 Transport Phenomena I 3 s.h.
Unified treatment of momentum, mass, energy transport in chemical engineering problems; use of vector and tensor notations in expressing equations of continuity, motion, energy. 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 porous and liquid transport in porous media and membranes, with emphasis on modeling of chemical reactions in porous catalytic; dusty gas and dusty-fluid models, including experimental clarification of flux; Fing and Stewart models; irreversible thermodynamics. Prerequisite: 52:44 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: 4:122.

52:156 Scanning Electron Microscopy and X-Ray Microanalysis
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
Theory, operation, applications of TEM, STEM, thin film X-ray microanalysis techniques for materials science majors; practice a variety of specimen preparation techniques, including metals, glass, ceramics, minerals. Consent of instructor required. Same as 12:165.

52:170 Nanotechnology
Molecular technology, assemblers, change, molecular machines, intelligence, applications, constraints, evaluation. Prerequisite: 57:15.

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: 52:150. Same as 12:272.

Process Dynamics, Design, Analysis
52:85 Process Dynamics and Control in Design 3 s.h.
Theory and application of process modeling 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 separations, heat exchanger network synthesis, physical property estimation, safety, computer aided design, unit operations theory, process control, economics, economic optimization. Prerequisites: 52:45, 52:47, 52:85, and 57:21.

Graduate Seminars, Advanced Topics, Research
52:190 Readings in Chemical and Biochemical Engineering
For graduate nonmajors who want to earn 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 3 s.h.
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 advisor required.

52:199 M.S. Thesis Research: Chemical and Biochemical Engineering 3 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. thesis in chemical and biochemical engineering. Graduate standing and consent of faculty advisor required.

52:299 Research: Chemical and Biochemical Engineering, Ph.D. Dissertation 3 s.h.
Experimental and/or analytical investigation of an approved topic for Ph.D. in chemical and biochemical engineering. Consent of advisor required.

CIVIL AND ENVIRONMENTAL ENGINEERING
Chair: Forrest M. Holly Jr.

Professors emeriti: Dan E. Branson, Harrison Kane, Howard W. McCauley, Donald B. McDonald, Hunter Rouse

Adjunct professors: Constantine P. Georgakakos, George Hallberg, Tatsuki Nakato, Doug Wallace

Associate professors: M. Asghar Bharti, Cheryl Conant, Burton C. Kross, Wilfrid A. Nixon, James W.

Shaw, Colby C. Swan, H. Michael Zhang, Y.K. Zhang

Assistant professors: Pedro J. Alvarez, A. Allen Shaw, Ralph I. Stephens, Richard L. Valentine, Han-Chin Wu

Professors emeriti: Dan E. Branson, Harrison Kane, Howard W. McCauley, Donald B. McDonald, Hunter Rouse

Adjunct professors: Constantine P. Georgakakos, George Hallberg, Tatsuki Nakato, Doug Wallace

Associate professors: M. Asghar Bharti, Cheryl Conant, Burton C. Kross, Wilfrid A. Nixon, James W.

Shaw, Colby C. Swan, H. Michael Zhang, Y.K. Zhang

Assistant professors: Pedro J. Alvarez, A. Allen
Civil engineering is one of the three largest fields of engineering. It traditionally has been concerned with facilities that are both large-scale and essential to modern life. Civil and environmental engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railways, harbors, airports, seaports, and even spaceports; large-scale structures and office buildings that provide enclosed working and living space; environmental and hydraulic systems that provide clean water and air, including filtration plants and distribution systems for municipal and industrial water supplies, wastewater treatment plants, dams, levees, and irrigation systems. Growth areas of civil and environmental engineering include infrastructure 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. There also 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, hydraulics 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.

**Second Semester**

- 4:16 Principles of Chemistry Lab 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.
- 53:20 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.

**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.
- 57:10 Dynamics 3 s.h.
- 57:19 Mechanics of Deformable Bodies 3 s.h.

### Environmental Subtrack

**SOPHOMORE YEAR**

**Second Semester**

- 22S:39 Probability and Statistics for Engineers (100 level) 3 s.h.
- 53:30 Soil Mechanics 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:150 Environmental Engineering: Natural Systems 3 s.h.
- 57:20 Mechanics of Fluids and Transfer Processes 3 s.h.

**JUNIOR YEAR**

**First Semester**

- 57:21 Principles of Design I 4 s.h.
- 53:71 Principles of Hydraulics 3 s.h.
- 53:78 Principles of Hydrology 2 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.

**Second Semester**

- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:21 Principles of Design I 3 s.h.

**Humanities or social science elective** (100 level) 3 s.h.

### General Subtrack

**SOPHOMORE YEAR**

**Second Semester**

- 22S:39 Probability and Statistics for Engineers (100 level) 3 s.h.
- 53:30 Soil Mechanics 3 s.h.
- 53:33 Structural Analysis 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:79 Hydraulic Design 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.

**Third Semester**

- 53:84 Project Design and Management in Civil Engineering 3 s.h.
- 53:85 Experiments in Civil and Environmental Engineering 2 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.

**Fourth Semester**

- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
- 53:31 Soil Mechanics 3 s.h.
- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 53:91 Professional Seminar: Civil Engineering 0 s.h.
- 53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
- 53:155 Environmental Engineering: Engineered Systems 3 s.h.
Civil and Environmental Engineering

SENIOR YEAR
First Semester
53:63 Transportation Engineering 3 s.h.
53:79 Hydraulic Design 3 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
53:134 Structural Design II 3 s.h.
53:150 Environmental Engineering: Natural Systems 3 s.h.
*Humanities or social science elective 3 s.h.
Technical elective 3 s.h.
Second Semester
53:84 Project Design and Management in Civil Engineering 3 s.h.
53:85 Experiments in Civil and Environmental Engineering 2 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
**53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
*Humanities or social science elective (100 level) 3 s.h.
Two technical electives 6 s.h.

Hydraulics and Water Resources Subtrack

SOPHOMORE YEAR
Second Semester
Same as for general subtrack.

JUNIOR YEAR
First Semester
Same as for general subtrack.
Second Semester
53:34 Structural Design I 3 s.h.
53:71 Principles of Hydraulics 3 s.h.
53:78 Principles of Hydrology 2 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
**53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
53:8 Electrical Circuits 3 s.h.
*Two humanities or social science electives (one at 100 level) 6 s.h.

SENIOR YEAR
First Semester
53:83 Transportation Engineering 3 s.h.
53:79 Hydraulic Design 3 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
53:150 Environmental Engineering: Natural Systems 3 s.h.
Humanities or social science elective (100 level) 3 s.h.
Two technical electives 6 s.h.
Second Semester
53:84 Project Design and Management in Civil Engineering 3 s.h.
53:85 Experiments in Civil and Environmental Engineering 2 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
**53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
*Humanities or social science elective (100 level) 3 s.h.
Two technical electives 6 s.h.

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 Science

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 Biocatalysts 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 Transportation

The structures, mechanics, and transportation curricula are directed primarily toward computer-aided structural design, optimization, mechanics of materials, and transportation systems and facilities. Special strengths exist in the areas of structural optimization, computational methods, concrete and prestressed concrete structures, vehicle impact analysis, soil behavior, ice engineering, traffic management systems, and constitutive equations for metals and geotechnical materials.

Course work and research are available in continuum mechanics and plasticity, structural design and optimization, dynamics of structures, finite element techniques, soil mechanics and foundations, concrete structures, transportation planning, and design, construction, and operation of transportation systems and facilities.

Cooperative relationships exist with the graduate programs in urban and regional...
planning and transportation studies, and collaborative research is conducted with the Public Policy Center, the Center for Simulation and Design Optimization, and the Iowa 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 grade-point average of at least 3.00. 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 grade-point average of at least 3.00 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 undergraduate grade-point average of at least 2.75; 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). GRE 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**

**Engineering Core**

The freshman engineering course 57:5 Engineering I 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 departments, see the subsection for each of the departments.

**Required and Elective Course Laboratories**

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 chemistry 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 individual 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 isotropic analytical HPLC; Perkin Elmer atomic absorption spectrophotometer with graphite furnace, autosampler, and mercury/hydride system; Beckman LS6000IC liquid scintillation counter; Dionex 4500i 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 (CGRER) 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 (ARCMINFO, GRASS) 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 flows, a refrigerated wind tunnel, a computer-controlled data handling system, 2-D and 3-D laser doppler anemometers for microscale velocity measurements, and extensive computational facilities.

The Computational Laboratory for Hydrometeorology and Water Resources uses a Hewlett-Packard DN10000 super-minicomputer, several Hewlett-Packard high-speed workstations, and graphic terminals and peripherals. It is equipped with advanced graphic software, communication software, mathematical software packages, and a Geographic Information System (GIS).

STRUCTURES, MECHANICS, AND TRANSPORTATION LABORATORIES

Laboratories for environmental 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 Tinnus 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.

Departmental faculty and students collaborate in work conducted at the Iowa drilling simulator.

Courses

Special Topics

53:00 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 upper 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 systems, computer graphics, recent developments in software and hardware; individual and team projects selected from structures, hydraulics, transportation, environmental engineering. Prerequisite: 57:6.

53:83 Surveying and Remote Sensing 3 s.h.
Engineering 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, bidding, testing. 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. Corequisite: 53:36 and 53:150.

53:91 Professional Seminar: Civil Engineering 0 s.h.
Professional aspects of civil engineering being presented through lectures and discussions by guest speakers, field trips, films, panel discussions. May be repeated. Junior standing required.

53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
Observation of projects, facilities relative to environmental, hydraulics and water resources, structures and materials, construction, transportation. Corequisite: 53:91.

53:98 Individual Investigations: Civil Engineering 1-3 s.h.
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 adviser 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 computers; 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 Design 3 s.h.
Fundamentals of computer graphics, visualization of engineering design and analysis data, solid modeling, window based user interface development; applications of these techniques to engineering problems. Prerequisite: working knowledge of FORTRAN or Pascal. Same as 58:110.

53:210 Developing Professional Service Business 3 s.h.
Exposes broad range of engineering, medical, and business students to the unique challenges of creating a specialized business; how professional skills; functional knowledge can be combined in a customer-oriented enterprise. Open only to M. B.A.; engineering, or health science students or to others by consent of instructor. Same as 67:210.

53:212 Analytical Methods in Thermo-Fluid Mechanics 3 s.h.

53:214 Analytical Methods in Mechanical Engineering 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 of linear systems. Prerequisite: 53:113. Same as 58:214.

Structures, Mechanics, and Transportation

53:30 Soil Mechanics 3 s.h.
Identification and classification of earth materials; hydraulic and mechanical properties of soils; soil improvement, laboratory testing. Prerequisite: 57:19.

53:32 Modern Structural Analysis 3 s.h.
Fundamental principles of structural analysis applied to statically determinate and indeterminate beams, trusses, and frames: external and internal equilibrium; compatibility of deformation, influence lines; parallel use of classical and matrix formulation; flexibility and stiffness methods; use of computers. Prerequisite: 57:19.
53:33 Structural Analysis 3 s.h.
Fundamental principles of structural analysis applied to statically determinate and indeterminate structures, continuous beams, trusses, and frames; external and internal equilibrium, compatibility of deflection; vital linear work; parallel use of classical and matrix formulation; slope deflection, stiffness and flexibility methods; use of computers. Prerequisite: 57:19.

53:34 Structural Design I 3 s.h.
Basic philosophy of structural design; loads on structures; role of structural analysis in design process; design of members in steel and concrete framed buildings; reinforced and prestressed concrete beam and slab structures; composite design; timber design; use of computers in structural design. Prerequisites: 53:32 and 53:19.

53:35 Design of Steel Structures 3 s.h.
Concepts and procedures in structural design; load and resistance factors; design of tension members, beams, columns, and connections; composite design; computer applications. Prerequisite: 57:19.

53:36 Reinforced Concrete Structures 3 s.h.
Fundamental analysis and design of reinforced concrete members and structures; flexure, shear, bond, torsion, continuity, deflections, yield-line theory; beams, one-way and two-way slab systems, columns, retaining walls, footings, composite members; basic concepts of prestressed concrete design; use of computers. Prerequisite: 57:19.

53:63 Transportation Engineering 3 s.h.
History of transportation modes, new transport technologies, traffic operations and control, economic evaluation of transport alternatives, transportation planning, roadway design and construction, route location, preventive maintenance strategies. Prerequisites: 22S:39 and 57:21.

53:131 Advanced Structural Analysis I 3 s.h.
Statically indeterminate structures, including continuous beams and trusses, grids, frames with sloping members, multistory and multihistory frames; classical and matrix formulation; column analogy, slope deflection, moment distribution; emphasis on matrix flexibility and stiffness methods; influence lines, virtual work, classical theorems, numerical procedures, plate flexure; use of computers. Prerequisite: 53:32.

53:132 Fundamentals of Vibrations 3 s.h.
Fundamental aspects of the vibration of linear and discrete systems; conditional and continuous structures; harmonic, periodic, arbitrary excitation; modal analysis; applications. Prerequisite: 57:19. Same as 58:315.

53:133 Finite Element I 3 s.h.
One- and two-dimensional boundary value problems; heat flow, fluid flow, torsion of bars and frames; isoparametric mapping; higher order elements; elasticity problems; use of commercial software. Prerequisite: 57:30. Same as 58:135.

53:134 Structural Design II 3 s.h.
Structural systems for buildings, bridges, industrial facilities; selection of structural systems and preliminary design; plastic analysis; design optimization; large span space structures; computer applications; design project. Prerequisites: 53:34 and 53:133.

53:135 Analysis and Design for Dynamic Loads 3 s.h.
Dynamic loads in civil engineering structures; vibration of single- and multi-degree-of-freedom systems; finite element modeling of vibration problems; dynamic effects of wind, earthquake, moving loads, earthquake-resistant design; use of computers. Prerequisite: 53:133.

53:137 Composite Materials 3 s.h.
Principles of mechanics of solid multiphase systems; applications in lightweight structures, ultralight materials, materials for replacement of heavy composites; composites with fibres, lamellar, particulate, cellular structures. Same as 51:177, 58:170.

53:138 Prestressed Concrete Structures 3 s.h.
Initial and time-dependent deformation of concrete structures; analysis and design of statically determinate and indeterminate prestressed concrete structures; flexure, shear, torsion, deflections; beams, slabs, composite members, columns, tension members, buildings, bridges, tanks, shells, use of computers. Prerequisite: 53:137.

53:139 Foundations of Structures 3 s.h.
Application of soil mechanics to analysis of structural foundations; slope stability analysis; bearing capacity and settlement of foundations; and load lines; retaining structures, braced cuts, reinforced earth structures; usage of computational models; subsurface exploration methods. Prerequisite: 53:30.

53:140 Intermediate Mechanics of Deformable Bodies 3 s.h.
Application of equilibrium equations, strain-displacement relations and constitutive relationships to practical structural systems and elementary plasticity problems. Prerequisite: 57:19. Same as 51:151, 58:150.

53:148 Fatigue/Durability in Design 3 s.h.
Macro- and micromechanisms of fatigue, behavior, design of engineering components, structures subjected to cyclic loading, with emphasis on metals; stress-life, strain life, linear elastic fracture mechanics approach to fatigue crack growth; safe-life, fast-life, damage tolerant design, constant, variable, amplitude life predictions; notches, residual stress, corrosion, temperature, multiaxial, weldments. Prerequisites: 51:85 or 53:35 or 55:55 or 58:150 or equivalent. Same as 58:158.

53:149 Fracture Mechanics 3 s.h.
Definition and criteria for failure, yield phenomena, linear elastic fracture mechanics, plane stress and plane strain fracture toughness, J-integral, COD, fatigue, safe-life, fast-life, damage tolerant design, corrosion, creep rupture design. Prerequisite: 53:63 or graduate standing.

53:162 Design of Transportation Systems 3 s.h.
Review of CAD tools, derivation of standards for geometric design, roadway design software, cross-sectional and longitudinal design of bridges, tunnels and railroads, applications to visualization and animation. Prerequisite: 53:63 or graduate standing.

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. Prerequisite: 53:235.

53:246 Continuum Mechanics and Elasticity 3 s.h.
Cartesian tensors and geometrical foundations; concept of strain, stress, motion, fundamental physical laws; constitutive equations and finite elasticity; equations of linear elasticity, elastic extension, torsion and bending of bars. Prerequisites: 53:113 and 53:140. Same as 58:251.

53:247 Theory of Viscoelasticity 3 s.h.
Linear theory of viscoelasticity; nanomaterials; Boltzmann superposition principle, linear functional; thermodynamic foundations; time-dependent superposition principle; boundary and initial value problems. Prerequisite: 53:140 or 53:241. Same as 51:257, 58:257.

53:264 Impact Analysis and Structural Crash Worthiness 3 s.h.
Analytical and numerical techniques for assessing crash worthiness of vehicles during impacts; stress wave propagation in structures; strain-rate effects, explicit finite element analysis; finite element models; physical experiment in finite element analysis. Prerequisite: 53:133.

53:267 Transportation Network Analysis 3 s.h.
Determination of traffic flows in road networks, elementary graph theory; optimization; representation of transportation networks; traffic assignment principles; user equilibrium; optimal design of transportation systems; applications. Prerequisites: 22S:39. Same as 102:262.

53:352 Topics in Solid Mechanics 3 s.h.
Current topics such as plane theory of elasticity, stress around crack tip, flow theory of plasticity, computational plasticity, damage mechanics, micromechanics. Prerequisite: 53:140 or equivalent. Same as 58:255.

53:354 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; extreminum principle of plasticity. Prerequisites: 53:113 and 53:140. Same as 58:254.

53:356 Continuum Mechanics and Plasticity 3 s.h.
Finite strain measures and rate of deformation; principles of rotary and matrix 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.

53:383 Environmental microBiology 3 s.h.
Fundamentals of microbiology and microbial ecology with application in water quality and biodegradation of priority pollutants; lectures and laboratory. Corequisite: 53:152.

Civil and Environmental Engineering • Engineering 373
Hydraulics, Hydrology, and Water Resources

53:71 Principles of Hydraulics 3 s.h.

53:79 Hydro Design 3 s.h.
Prerequisites: 53:177 and 53:178.

53:78 Principles of Hydrology 2 s.h.

53:15 Environmental Engineering Design 3 s.h.

53:160 Modeling Analysis 3 s.h.
Application of numerical analysis to transport phenomena, chemical kinetics, reactor design; emphasis on modeling, formulation and numerical solution; ordinary and partial differential equations. Seminar. Credit and no lab. Corequisite: 53:160.

53:71 Principles of Hydraulics 3 s.h.

53:161 Atmospheric Chemistry and Physics 3 s.h.
Principal chemical and physical processes including atmospheric trace gases and aerosol and water cycles; emphasis on computational chemistry, aerosol science, major sources and removal processes. Corequisite: 53:71.

53:276 Viscoelastic Flow 3 s.h.
Stress of compressible viscous flow; classical exact analytical and numerical solutions; flow regimes and approximations; laminar boundary layers: equilibrium solutions; methods of analysis; introduction to stability theory; incompressible turbulent flow: mean-flow and Reynolds-stress equations, modeling, solution procedures, and applications; compressible boundary layers. Corequisite: 53:169. Same as 58:260.

53:277 Inviscid Flow 3 s.h.
Flow of an incompressible fluid steady and unsteady, two- and three-dimensional flows, rotational 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. Prerequisites: 53:169. Same as 58:262.

53:280 Hydrodynamic Systems 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 hydroeteorologic forecasting; statistical inference applications to surface and groundwater models; stochastic optimization and control of water resources systems; multiobjective analysis. Prerequisites: 53:150 and 53:178.

Graduate Seminars, Advanced Topics, Research

53:190 Readings in Civil and Environmental Engineering 3 s.h.
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, Mechanics, Materials 0 s.h.
Presentation and discussion 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 topical issues, case studies, and research in environmental science and engineering by students, guest lecturers, faculty, or senior graduate standing required.
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 computer engineering, control, telecommunications, electronics, signal and image processing, 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

- 413 Principles of Chemistry I 3 s.h.
- 10:3 Accelerated Rhetoric 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.
- 55:90 Electrical Engineering freshman Seminar 0 s.h.
- 57:5 Engineering I 3 s.h.
- Humanities or social science elective 3 s.h.

Second Semester

- 416 Principles of Chemistry Lab 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 H 4 s.h.
- 57:7 Statics 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.
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 also is available. Exceptional students in scholarship and research is stimulated 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 bound only by a few broad guidelines imposed by the Graduate College and by the program. Close interdisciplinary ties with other departments exists 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 photonics 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-carryed 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 materials and devices for electronic and optoelectronic applications also is being pursued. Specific areas of interest include low-temperature chemical vapor deposition of silicon-germanium and silicon carbide alloys on silicon, electrical and optical characterization of semiconductors and semiconductor devices, devices based on heterostructures and on quantum effects, and microfabrication and nanofabrication of devices.

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 analog and 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, high performance VLSI circuits; test pattern generation for VLSI circuits, behavioral modeling and simulation using hardware description languages, parallel algorithms for VLSI-CAD applications: applications of distributed/parallel processing; performance evaluation of parallel computers; programming environments for portable MIMD computing; debugging techniques and software tools for high-performance parallel software development; and reliable parallel computing on workstation networks.

Signal and Image Processing

Image processing and basic and applied signal processing arise as areas of emphasis. A digital signal processing laboratory and an image analysis laboratory are available to support this research. 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, design of resolution analysis techniques for imaging systems, and multirate signal processing.

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 pacica 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 fraxals. 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; use of control theory to analyze distributed computing, communications, and manufacturing systems; phase stabilization of evanescently coupled semiconductor laser arrays; and the optimal control of heating, ventilation, and air-conditioning 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 by students in the thesis option. Without thesis, a total of not more than 3 semester hours of independent study credit may be included in the required 36-semester-hour total.

Candidates for 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 cumulative grade-point average of at least 3.00.

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

55:182 Software Engineering Languages and Tools 3 s.h.
55:183 Software Engineering Project 3 s.h.

In addition, both options require completion of at least three courses chosen from the following.

22C:116 Advanced Operating Systems 3 s.h.
55:131 Introduction to VLSI Design 3 s.h.
55:132 High Performance Computer Architecture 3 s.h.
55:133 Graph Algorithms and Combinatorial Optimization 3 s.h.
55:134 Computer Communications 3 s.h.
55:232 Parallel Computing and Advanced Architecture 3 s.h.
55:233 Advanced Parallel Programming Paradigms 3 s.h.
55:234 Distributed Computing 3 s.h.

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**

Ph.D. students must complete at least 72 semester hours of credit in a coherent program acceptable to the adviser and approved by the graduate committee. At least 45 semester hours of credit must be 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. Ph.D. students take a Ph.D. qualifying examination and a Ph.D. comprehensive examination and then must successfully complete a research program that includes a minimum of 18 semester hours of Ph.D. research and culminates in the preparation of a thesis. Finally, the candidate must present a successful oral defense of the thesis.

Ph.D. students must maintain a cumulative grade-point average of 3.25 or higher in all 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 cumulative grade-point average of at least 3.25 is required for admittance to the exam. In the event of failure, the examination may be retaken only once, 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**

Admission to the graduate program requires a grade-point average of at least 2.75 for M.S. students and at least 3.25 for Ph.D. students on all courses in electrical and computer engineering, mathematics, and physics. M.S. students with grade-point averages lower than 2.75 but higher 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**

**Engineering Core**

Electrical and computer engineering provides core instruction for the college in linear systems, electrical circuits, electronics, instrumentation, and computers. A key part of this core teaching responsibility lies in providing students with an early opportunity to use engineering laboratory instrumentation.

**Undergraduate Laboratories**

The undergraduate laboratories include facilities for the study of electrical and electronic circuits, signals and systems, microprocessor-based computers and systems, measurement automation, communication systems, control systems, computer-aided design of VLSI circuits, image processing, robotics, and optics.

An electronic classroom devoted to image acquisition, processing, transmission, and analysis is the newest addition to the list of state-of-the-art facilities available for undergraduate and graduate education. This 30-seat classroom equipped with high-end Hewlett Packard UNIX workstations facilitates new revolutionary approaches to engineering education. Specifically, class material is taught in a collaborative learning environment in which students participate during lectures, acquiring practical hands-on experience.

**Graduate Facilities and Laboratories**

The department has laboratories intended primarily for graduate research in the areas of parallel processing, image processing, CAD for VLSI circuits, software engineering, electro-optics, plasma physics, control systems, 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**

55:900 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.

55:88 Principles of Electrical Engineering Design 3 s.h.
Design problems requiring integration of subject matter from other required electrical and computer engineering courses.

55:89 Senior Electrical Engineering Design 3 s.h.
Individual or team project; demonstration of completed project and formal engineering report. Senior standing required.

55:90 Electrical Engineering Freshman Seminar 0 s.h.
Introduction to the electrical and computer engineering curriculum and profession; ethics and professionalism in the classroom and workplace. Open only to freshmen and transfer students.

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.

Individual projects for electrical engineering undergraduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Consent of supervising faculty adviser required.

**Digital Systems, Computers, Software Engineering**

55:32 Introduction to Digital Design 3 s.h.
Modem design and analysis of digital switching circuits; combinatorial logic; sequential circuits and system controllers; interfacing and timing techniques; design methodologies using medium- and large-scale integrated circuits; lab arranged.
Prerequisites: 57:38, and 57:17 or 22 C-18.

55:33 Introduction to Software Design 3 s.h.
Design of software for microprocessor-based engineering systems; cross 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), assembly language programming, ALU design, arithmetic algorithms and realization of arithmetic functions, hardened and microprogrammed control, memory hierarchies, virtual memory, cache memory, interrupts and DMA, input/output; introduction to high-performance techniques, pipelining, multiprocessing; introduction to hardware description languages (Verilog, VHDL); student design and simulate a simple processor. Offered spring semesters. Prerequisites: 55:32 and 55:33.

55:130 Switching Theory 3 s.h.
Switching algebra; combinational circuits— hazards, minimization, multiple-output networks; sequential circuits — critical races, essential hazards, fundamental-mode, pulse mode, synchronous circuits state assignment, state reduction; fault testing— path sensitizing, boolean difference, multiple-faults; design for testability and built-in-test. Prerequisite: 55:32.

55:131 Introduction to VLSI Design 3 s.h.
MOS devices and circuits; MOS transistor theory, MOS processing technologies, MOS device models; timing and power considerations; performance issues; scaling; various logic schemes; circuit techniques; clocking strategies; I/O structures; design styles; ASIC design; MOS subsystem design; system case studies; overview of design automation tools, introduction to hardware description languages, design synthesis, 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 using hardware description languages (HDL) simulation and analysis, hierarchical memory design, pipeline processing, vector machines, numerical applications, multiprocessor architectures and parallel algorithm design techniques; evaluation methods to determine relationship between computer design and design goals. Prerequisites: 22C:180 or 55:32-55:33 and 55:35.

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 or equivalent.

55:134 Computer Communication 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; computer science; and 228:39 or 228:120. Same as 22C:178.

55:136 Advanced VLSI Design 3 s.h.
Models of transistors, models of interconnects, evaluation of circuit performance, circuit optimization, high-performance digital circuits— clocking and timing, practical problems of CMOS VLSI, introduction to behavioral modeling and simulation, introduction to VLSI-CAD, multiprocessor systems; lab. Prerequisite: M 55:55.

55:138 Testing Digital Logic Circuits 3 s.h.
Logic models for faults; fault detection in combinational and sequential circuits; fault-diagnosis; design for testing: random testing, compressed-data testing, built in testing. Theory 55:140. 55:32 and 55:41.

55:180 Fundamentals of Software Engineering 3 s.h.
Problem analysis, requirements specification, design, implementation, testing/maintenance, integration, project management; human-computer interface; management and technical communication; design methodologies; software validation and verification, project group. Open only to seniors in electrical and computer engineering or computer science. Senior standing in electrical engineering or computer science required. Same as 22C: 180.

Formal models and their application in software engineering processes; operational, algebraic, model-based and property-based specification methods; verification of consistency and completeness of specifications; verification of properties of software; specification construction and verification using method-based tools. Same as 22C:181.

55:182 Software Engineering Languages and Tools 3 s.h.
Object-oriented programming concepts (objects, classes, and multiple inheritance, polymorphism and dynamic binding, templates); advanced C++ with standard classes (including Standard Template Library); other object-oriented tools and languages such as Smalltalk or Eiffel; introduction to design patterns and software architectures such as Model View Controller and application frameworks; role of the developer. Prerequisite: 22C:180 or experience with C++. Same as 22C:182.

55:183 Software Engineering Project 3 s.h.
Use of object-oriented concepts and object-based models in software system analysis and design; Booth, OMT, Booch-Rumbaugh unified method and notation; Jacobson's use cases; use of design patterns; software architectures; case studies; object oriented process and project management; team project for a real software product. Prerequisites: 22C:181 and 22C:182, or consent of instructor. Same as 22C:183.

55:230 Advanced Logic Synthesis 3 s.h.
Synthesis of multiple output circuits; finite state machines; algebraic factoring; testability preserving transformations; design verification; high-level synthesis. Prerequisites: 55:130 and 55:131, or consent of instructor.

55:232 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/nonshared memory, hybrid and unconventional architectures. Prerequisite: 55:132.

55:233 Advanced Parallel Programming Paradigms 3 s.h.
Shared memory programming, message passing programming; process interaction paradigms; programming models and parallel object-oriented languages; parallel algorithms; mapping problems; performance issues; scalable parallelization algorithms; performance issues; scalability; various parallel programming models; languages, compilers, memory hierarchies, virtual memory, shared memory systems; lab. Prerequisites: 55:132 and 55:133, or consent of instructor.

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 and analysis of FET and BJT amplifiers; low, midrange, high-frequency analysis; difference amplifiers; feedback amplifiers; SPICE simulation; power amplifiers; digital logic families. Prerequisites: 55:17 and 55:18.

55:42 Signals and Systems 3 s.h.
Representations of continuous and discrete-time systems; analog in both time and frequency domains; Fourier analysis; sampling theory; x-transforms. Prerequisite: 55:12 and 55:18.

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. Prerequisite: 55:44.

55:143 Linear Integrated Electronics 3 s.h.
Advanced topics in linear integrated circuits; active load concepts, noise models; analog voltage multipliers, phase-locked loops; case study; design projects, regulations; MOS amplifier design. Prerequisite: 55:41.

55:144 Digital Integrated Electronics 3 s.h.
Principles of operation of digital integrated circuits; logic families; use of four-state transistor models; sources of propagation delay; advanced design concepts; SPICE modeling; transmission line effects. Prerequisite: 55:41.

55:146 Digital Signal Processing 3 s.h.
Theory, techniques used in representing discrete-time signals; system concepts in frequency and sampling domains; FIR and IIR digital filter theory, design and realization techniques; theory, application of discrete Fourier transforms/FIT. Prerequisite: 55:42.

55:148 Digital Image Processing 3 s.h.
Mathematical foundations and practical techniques for digital manipulation of images; image sampling, compression, enhancement, linear and nonlinear filtering and restoration; Fourier domain analysis; image segmentation. Prerequisite: 55:42.

55:244 Theory of Adaptive Systems 3 s.h.
Adaptive filters and signal processing; LMS algorithm; RLS algorithm; adaptive lattice filters; adaptive controls; recent advances in adaptive systems. Prerequisites: 55:146, 55:163, and 55:164.

55:245 Tomographic Image Reconstruction 3 s.h.
Mathematical foundations and practical implementation techniques of tomographic image reconstruction algorithms from nonfolding and differencing sources in parallel beam, fan-beam, and limited-angle system geometries. Prerequisites: 55:146 and 55:148.

55:247 Image Analysis and Understanding 3 s.h.
Mathematical foundations and practical techniques of digital image analysis and understanding; image segmentation (from edges and regions), object description (from boundaries, region, scale, scale insensitive descriptions, 54d shape, texture) pattern recognition (statistical and syntactic methods, cluster analysis), image understanding (knowledge representation, control strategies, matching, context, semantics), image analysis and understanding systems; lab arranged. Prerequisites: 55:146 and 55:148.

55:248 Advanced Digital Image Processing 3 s.h.
Visual perception of images (light perception, monochrome vision model, color vision model), advanced image transforms (DCT, Hadamard Haar, Karhunen-Loeve transforms); image restoration (modeling, shaping of image techniques, spectral image restoration techniques); geometrical image modification; 3D imaging; morphological image processing (connectivity, hit-or-miss transformations, dilation, erosion, opening). Prerequisites: 55:146 and 55:148.

55:50 Communication Systems 3 s.h.
Fourier transform review, Hilbert transforms; narrow band signals, bandpass filters, amplitude and angle modulation systems; random processes, stationarity, ergodicity; noise, noise figure, noise analysis of CW systems; pulse analog modulation; design principles; lab arranged. Prerequisites: 228:39 and 55:42.

55:150 Communication Theory 3 s.h.
Random processes, source coding, digital transmission at baseband, optimum receiver design for Gaussian noise, error probability and power spectrum analysis, signal design for bandlimited channels, digital carrier modulation, bandwidth-energy/error probability tradeoffs, 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 random waves; applications to speech processing, communications, radar. Prerequisite: 55:150.

55:152 Introduction to Information and Coding Theories 3 s.h.
Quantitative measure of information; source encoding; error detecting codes; block and convolutional codes, design of hardware and software implementations; Viterbi decoding. Prerequisite: 55:50.

55:60 Control Systems 3 s.h.
Fundamental concepts of linear feedback control, mathematical modeling, transfer functions, system response, feedback effects, stability, root-locus and frequency response analysis and design, computer control, lab exercises. 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: 55:12 and 55:70.

55:68 Water Systems Analysis 3 s.h.
Fundamentals of three phase analysis, transmission line parameters, per-unit calculations for systems with machines and transformers, matrix methods of line and load flow calculations. Prerequisite: 55:12.

55:160 Control Theory 3 s.h.
State space approach; controllability, observability, canonical forms; design of Luenberger observers; feedback control via pole placement; stability, minimal realization; advanced topics. Prerequisites: 55:60 or 58:131. Same as 58:133.
55:163 Random Processes in Control and Communications 3 s.h.
Probability, random variables, functions of random variables, vector expectation and functions, multivariate Gaussian distributions, random sequences and processes, spectral analysis, analysis of linear systems with random inputs, estimation, applications to system analysis. Prerequisite: 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; control design by state variable and input/output methods; advanced topics in digital control, lab. Prerequisite: 55:60 or 58:131. Same as 58:134.

55:165 Introduction to Robotics 3 s.h.
Coordinate transformation; kinematics, inverse kinematics; manipulator dynamics; trajectory planning; manipulator control; force and compliance control; laboratory project. Prerequisite: 55:60 or consent of instructor. Same as 58:156.

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 55:163.

55:264 Nonlinear Stability 3 s.h.
Concepts of different types of stability; Lyapunov’s theorem; Lyapunov’s methods; periodic systems; slowly time varying systems; linearization principle; Popov’s criterion; circle criterion; discrete time systems; contraction mapping principle. Prerequisites: 55:160 and 55:164.

55:266 Advanced Control Theory 3 s.h.
Optimal control, tracking control, state reconstruction, nonlinear systems, descriptor systems, optimal observation, optimal filtering. Prerequisite: 55:160. Same as 58:231.

Waves and Materials

55:70 Electromagnetic Theory 3 s.h.
Electric and magnetic forces, Maxwell’s equations, wave propagation, applications, including radiation, transmission lines, circuit theory. Prerequisites: 22M:42 and 29:18.

55:72 Electrical Engineering Materials and Devices 3 s.h.
Fundamentals of semiconductor devices and devices; principles of the p-n junction diode, bipolar transistor, field effect transistors. Prerequisites: 29:18 and 55:41.

55:170 Advanced Electromagnetic Theory 3 s.h.
Time varying fields, plane wave propagation, reflection, refraction, waves in free space, transmission lines, impedance matching, Smith chart; metallic and dielectric wave guides; 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 Physics 3 s.h.
Semiconductor physics, semiconducting devices; quantum mechanics, statistics; transport; bipolar, MOS transistors; physics of device operation as it relates to circuit design. Prerequisites: 29:83 and 55:72.

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.
Microscopic, optical, macroscopic optical properties of matter; dipole radiation; normal modes of matter; optical activity; anisotropic crystals; electro-optical, magnetic-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 and propagation; diffraction and angular plane wave spectrum; lenses as Fourier transformers, lens configurations as general optical processors; lasers, coherence, spatial frequency analysis; holography, interferograms, correlated, matched filters; synthetic aperture radar; optical computing. Prerequisites: 55:42 and 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; laser and diode laser, acousto-optic modulation; optical detection, noise, application to communication systems. Prerequisite: 55:70. Same as 29:182.

55:272 Quantum Electronics 3 s.h.

55:274 Laser Principles 3 s.h.
Laser theory, stimulated emission, dispersion theory, broadening mechanisms, rate equations, gain saturation, optical resonators, mode locking, Q-switching techniques, survey of laser types, modes of operation. Prerequisite: 55:170 or equivalent. Same as 29:224.

55:276 Nonlinear Optics 3 s.h.
Primarily classical treatment of second and third order optical nonlinearities; phase matching, harmonic generation, three and four wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: 55:170. Same as 29:222.

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 adviser required.

Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for M.S. degree with thesis in electrical and computer engineering. Graduate standing and consent of faculty adviser required.

Discussion of current research. Consent of instructor required. Same as 29:261.

55:295 Advanced Topics in Electrical and Computer Engineering arr.
Discussion of current approved topic 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 adviser required.

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 advisors to management or may participate directly in management decisions. Representative job titles include industrial engineer, manufacturing engineer, systems analyst, quality specialist, operations research analyst, internal consultant, human factors specialist, supervisor, and manager. While most industrial engineers are employed by manufacturing firms, others work in government agencies or service organizations such as airlines, banks, hospitals, and consulting companies.

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.

Design is an integral part of the undergraduate program; the department’s courses include comprehensive design experiences for students.

Curriculum

FRESMAN YEAR

First Semester

4:13 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.
56:10 Industrial Engineering Freshman Seminar 0 s.h.
57:5 Engineering I 3 s.h.

Second Semester

4:16 Principles of Chemistry Lab 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.
56:10 Industrial Engineering Freshman Seminar 0 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 11 4 s.h.
56:20 Industrial Engineering Sophomore Seminar 0 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.
56:20 Industrial Engineering Sophomore Seminar 0 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.
SENIOR YEAR
First Semester
31:156 Psychology in Management (social 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 electives (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: 104 Macroeconomic Theory 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.

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.

Engineering Science Electives
Students may select one of the following.

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 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 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.
56:263 Quality Engineering II 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: design and manufacturing, human factors engineering/ergonomics, engineering management, quality and production control, and operations research and applied statistics.

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, 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 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 research. 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. For either option, students should earn two-thirds or more of their graduate credit in courses offered by the department.

Entering students are advised by the industrial engineering chair or by a designated faculty adviser. During the first fall or spring semester of the student’s residence, a regular adviser is assigned by the program chair or the graduate program coordinator.

During that semester, the student, his or her adviser, and the examining committee prepare a plan of study, which they submit to the program chair for approval. Once the plan is approved, it is filed with the student’s record. It is the student’s responsibility to assure that a plan of study is submitted to the program chair.

Entering students in all programs need a background in computer programming, e.g., C++, C, Pascal, or FORTRAN, probability, statistics, and mathematics equivalent to that required in accredited undergraduate engineering programs. Verbal and written skills in the English language also are needed. Engineering management and human factors students 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 grade-point average of at least 3.00 (based on a 4.00 scale) on all graduate course work, both 100 and 200 level courses, and to assure that a plan of studies is submitted to the program chair.

Doctor of Philosophy

Typically, Ph.D. programs in industrial engineering require at least 90 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 grade-point average of at least 3.25 (based on a 4.00 scale) on all graduate work taken at The University of Iowa and the demonstration of capacity for individual achievement.

Entering students are advised by the industrial engineering program chair or by a designated faculty adviser. During the first regular semester of the student’s residence, an adviser is assigned by the program chair or the graduate program coordinator.

During that semester, the student and his or her adviser prepare a plan of study, which they submit to the program chair for approval. Once the plan is approved, it is filed with the student’s record. It is the student’s responsibility to assure that a plan of studies is submitted to the program chair.

Upon completing the course work specified by the advisory 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

Reference letters, student research interests, grade-point average for previous graduate study, and factors such as faculty availability are considered in admission decisions.

Students with an M.S. objective may be admitted from an ABET-accredited baccalaureate curriculum in any engineering discipline or in the mathematical and physical sciences with a grade-point average of at least 3.00 (based on a 4.00 scale) and/or an acceptable score on the Graduate Record Examination (GRE) General Test. Applicants from non-U.S. institutions must meet equivalent conditions for regular admission. Students with lesser qualifications may be considered for conditional admission.

Students from business or social science programs who have mathematical preparation similar to that of engineering students are considered for regular or conditional admission. Students on conditional status must achieve regular status within two sessions of their first registration by attaining an acceptable grade-point average and gaining regular acceptance by the industrial engineering program faculty; otherwise, they are dismissed. Admissions may be limited by available resources.

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 sciences, computer science, or physical sciences with a grade-point average of at least 3.25 (based on a 4.00 scale) and/or an acceptable GRE General Test score. Applicants from outside the United States must meet equivalent standards for regular admission as determined by The University of Iowa. Students also may be admitted from business or social science programs as determined individually. Students who want 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.

There are three principal requirements for admission to Ph.D. degree candidacy, in addition to the requirements of the Graduate College. The first is a grade-point average of at least 3.25 (based on a 4.00 scale) on all graduate work taken at The University of Iowa. The second requirement is adequate demonstration of the capability for creative individual research achievement (typically a dissertation research proposal).

The third is successful completion of a comprehensive examination given by the industrial engineering department. This examination is scheduled with the approval of the student’s adviser and the industrial engineering program chair when the student’s plan of study is essentially completed. The examining committee determines the composition of this examination, including both written and oral parts. It also determines whether the student is ready to begin dissertation research.

Having satisfactorily completed this examination, the student is accepted as a candidate for the Ph.D. degree and normally has
only to complete and defend his or her dissertation in a final examination, which is conducted by faculty members approved by the program chair and the dean of the Graduate College.

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 for the real-time collection and analysis of human performance data. Equipment for demonstration of alternative forms of hand tools, information displays, and human responses is available.

IOWA DRIVING SIMULATOR (IDS) LABORATORY
Many students and a number of faculty members in ergonomics/human factors are associated with the ground vehicle simulator located in the Engineering Research Facility. The facility contains 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
The CAM Laboratory is used to teach CAD (computer-aided design) and CAM programming and to set up projects that 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 He microcomputers; HP workstation; small-scale machine tools (milling and turning); and different types of industrial controls, including a machine vision system.

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 the CNC Machining 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 conducted here. An automated storage and retrieval system (AS/RS) is 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.

ADVANCED WELDING LABORATORY
The Advanced Welding 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 and process control algorithms 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
The Intelligent Systems Laboratory links industry and state-of-the-art academic research by supporting a research program that strives to bring together the results of current academic research in industrial engineering and problems encountered in practice. Funding from government agencies and industrial corporations results in the development of new theories in the area of industrial engineering, solutions to practical problems inherent to manufacturing and service industries, and enhancement of engineering education. Most of the laboratory's recent projects concentrate on development of software tools for product and manufacturing design.

The Intelligent Systems Laboratory, upgraded during the summer of 1995, is furnished with the latest technology to support research on a variety of computing platforms. A variety of software is available for modeling, design and construction of intelligent systems, such as VP Expert, NExpert, LISP, PROLOG, Intelligent CAD design, SLAM, and SIMAN.

Courses

Special Topics

56:00 Cooperative Education Training Assignment: Industrial Engineering 0 s.h.
Industial 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.

56:10 Industrial Engineering Freshman Seminar Introduction to curriculum, and profession; ethics and professionalism in classroom and workplace. Open only to engineering freshmen and transfer students.

56:20 Industrial Engineering Sophomore Seminar O s.h.
Curriculum and profession; ethics and professionalism in classroom and workplace. Open only to engineering sophomores and transfer students.

56:91 Professional Seminar: Industrial Engineering O-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.

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.
56:131 Manufacturing Systems
3 s.h.
Manufacturing as systems consisting of computer and microprocessor-based control systems; part design and manufacturing using CAD/CAM; technical and economic trade-offs regarding the design, selection, implementation of various degrees of computer linking in manufacturing systems; computer numerical control (CNC) machining; automated material handling, automated assembly, flexible manufacturing systems.
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 robot control; design of robotic workcells; laboratory projects.
Prerequisites: 56:31 and 57:6.

56:134 Concurrent Engineering
3 s.h.
Devising engineering specifications based on customer needs; design methodologies of products; reengineering of design and manufacturing processes; look 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.
Search techniques, components of knowledge-based systems, design of knowledge bases, inference; application of knowledge-based systems in design of products, processes, systems, machine diagnostics, production planning, scheduling.
Prerequisites: 56:171 and 57:21.

56:231 Computer-Integrated Manufacturing
3 s.h.
Design and control of 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.

Human Factors/Ergonomics
56:140 Ergonomic Design
3 s.h.
Human-centered design of manufacturing systems, commercial products; time-motion studies, motion analysis, fatigue, workplace and handheld design, human factors of product quality, communications 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: 56:229 or 56:220 and 56:142.

56:142 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 methodologies. Offered fall semesters.
Prerequisite: 31:1 or 31:3. Same as 31:155.

56:143 Advanced Ergonomics
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. Corequisite: 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 readings 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.

56:242 Human Computer Interaction
3 s.h.
Development of projects using human factors principles in the design of computer interfaces.

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: 56:17 or consent of instructor.

56:153 Engineering Administration I
3 s.h.
Current readings, case 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/cost-flow analysis; risk analysis; applications in investment management and project planning; facilities-equipment acquisition and replacement; research, development, designs; capital budgeting. Offered full semesters of odd years. Prerequisites: 228:39 or 228:120 and 57:14; or consent of instructor.

56:156 Engineering Economic Decisions
3 s.h.
Choosing the most economical decisions in design and management applications, decision rules, utility theory, Bayesian analysis and information, conjugate own, decision strategies, multicriteria objectives, Offered full semesters of even years. Prerequisites: 228:39 or 228:120 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 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: 56:150 or consent of instructor.

56:253 Engineering Administration II
3 s.h.
Continuation of 56:151; readings that emphasize projects 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
3 s.h.
Projects involving the design of products and related operational systems in an industrial or service organization, including associated entrepreneurial or intrapreneurial planning. Offered spring semesters. Prerequisites: 56:134 and 57:14.

56:162 Quality Control
3 s.h.
Basic techniques of 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 spring semesters. Prerequisite: 228:39. Same as 228:133.

56:163 Quality Engineering I
3 s.h.
Engineering techniques for designing quality into manufactured products, processes, design, 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 methods for complex systems; renewal, repair theory; related parameter estimation. Offered full semesters.

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: 56:77.

56:263 Quality Engineering II
3 s.h.
Continuation of 56:161; signal-to-noise ratios, other data transformations; empirical model building and response surface methods for quality engineering; feedback, array, model-array techniques for optimizing quality. Prerequisite: 56:163.

Operations Research and Applied Statistics
56:171 Operations Research
3 s.h.
Operations research models and applications emphasizing both deterministic and probabilistic modeling; linear programming, duality, parametric analysis, dynamic programming, queueing theory, games, decision theory. Offered fall semesters. Prerequisites: 228:39 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: 228:120 or equivalent. Same as 228:152.

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: 57:24 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 combinatorial optimization problems, including integer and mixed-integer mathematical programming problems as well as problems formulated in a network or graph setting, including routing of vehicles and location of facilities in networks. Offered fall semesters. Prerequisite: 56:171 or equivalent.

56:273 Stochastic Systems
3 s.h.
Probabilistic operations research models and algorithms, with emphasis on applications in manufacturing and production planning; random processes; Markov chains and applications; probabilistic dynamic programming; Markov decision problems; queueing models. Prerequisites: 56:171 and introductory course in probability models.

Graduate Seminars, Advanced Topics, Research
56:199 Research: Industrial Engineering
3 s.h.
Individual projects for industrial engineering graduate students presented by guest lecturers, faculty, students. Graduate standing required.

56:198 Individual Investigations: 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.

56:195 Contemporary Topics in Industrial Engineering
arr.
Recent advances and research in industrial engineering presented by guest lecturers, faculty, students. Graduate standing required.

56:196 Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis. Industrial Engineering ARR.

56:263 Quality Engineering II
3 s.h.
Continuation of 56:161; signal-to-noise ratios, other data transformations; empirical model building and response surface methods for quality engineering; feedback, array, model-array techniques for optimizing quality. Prerequisite: 56:163.
MECHANICAL ENGINEERING

Chair: Lea-Der Chen

Assistant professors: Karim Abdel-Malek, Jiun S. Chen, Jeffrey S. Freeman, Sharif Rahman

Associate professors: Jeffrey S. Marshall, Wilfrid A. Nixon

Assistant professors: Karim Abdul-Malek, Jian S. Chen, Jeffrey S. Freeman, Sharif Rahman

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 the design of machines. Mechanical engineers conceive, plan, and 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 processes; heating, ventilating, air-conditioning and refrigerating systems; environmental control devices; and biomedical systems. 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, medical 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, health care providers, 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 electives according to program guidelines. Upper-level students are required to work on group projects in a senior-level capstone design course, 58:86 Mechanical Engineering Design 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 society that involve environmental, economic, managerial, and political decision making. Therefore, mechanical engineers must possess appreciation of social and humanistic issues relating to business, environment, government, history, language, religion, 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.

FRESHMEN YEAR

First Semester
413 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.
*Social science elective 3 s.h.

Second Semester
4:16 Principles of Chemistry Lab 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 H 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 Design Project 3 s.h.
Technical electives 6 s.h.
*Humanities 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 adviser before choosing elective courses.

Guidelines for choosing technical electives are as follows.

A minimum of two electives from mechanical engineering courses must be taken.

SOPHOMORE YEAR

First Semester
22M:42 Vector Calculus for Engineers 3 s.h.
29:18 Introductory Physics H 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 Design Project 3 s.h.
Technical electives 6 s.h.
*Humanities 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 adviser before choosing elective courses.

Guidelines for choosing technical electives are as follows.

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.

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.
- 58:133 Control Theory 3 s.h.
- 58:134 Computer-Based Control Systems 3 s.h.

### Mechanical Systems Engineering
- 58:110 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.
- 58:152 Vehicle Dynamics and Simulation 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
- 58:111 Numerical Calculations 3 s.h.
- 58:113 Mathematical Methods in Engineering 3 s.h.
- 58:115 Finite Element 1 3 s.h.
- 58:149 Engineering Optics 3 s.h.
- 58:195 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 fluid mechanics, thermal 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 electives, 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 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. The program focuses on elucidation of fundamental principles and techniques of solving problems in the various fields of fluid engineering. Computer use, both in mathematical modeling of flow phenomena and in acquisition and processing of experimental data, is emphasized.

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 LDV and thermal anemometry for flow analysis.

#### Thermal Sciences

The graduate program in thermal sciences and systems is designed to provide students a rigorous and broad foundation in theoretical and experimental aspects of the subject. It prepares future graduates for careers in industry, teaching, and government. The program emphasizes fundamentals of thermodynamics and heat transfer, and associated analytical, numerical, and experimental methods used in energy conversion systems. Areas of concentration include fluid mechanics, thermodynamics, heat transfer, phase-change, and combustion.

Most courses relevant to the specialization areas are offered by the Department of Mechanical Engineering. Students are encouraged to supplement these with courses from other areas, such as mathematics and physics, and courses offered by 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 in absorbing and scattering media; 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 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 is designed to provide students a strong background in theoretical, computational, experimental, and applied aspects of the subject. It prepares future graduates for careers in high-level applied research, advanced system analysis, design, and teaching. The program emphasizes fundamental principles, computational techniques, and experimentation used to analyze and design mechanical systems. Areas of concentration include machine dynamics, operator-in-the-loop simulation, optimal design, structural optimization, control systems, and fatigue and fracture mechanics.

Although most courses relevant to the specialization areas are offered by the Department of Mechanical Engineering, students are encouraged to consider appropriate courses from other areas, such as mathematics, statistics, and physics, and those offered by other departments in the College of Engineering.

Current research projects include design sensitivity analysis of rigid and flexible mechanical systems; computer-aided design; computer-aided engineering visualization and communication; geometric modeling; mechanical system modeling; mechanism and manipulator workspace analysis; integrated computer-aided engineering design; real-time
dynamic simulation; vehicle system dynamics; dynamic systems with intermittent motion; nonlinear and dynamic finite element analysis of structures; arbitrary Lagrangian/Eulerian finite element method for contact-impact simulation; finite element techniques for hyperelastic and viscoelastic materials; meshless methods for hyperelasticity and plasticity and for contact problems; finite element analysis of engineering elastomers; component/structure interaction in vehicle system simulation; multiple-scale analysis of structures using wavelets; design sensitivity analysis of structural systems and of fracture; reliability based design optimization; shape optimal design of hyperelastic materials; design sensitivity analysis of nonlinear structures; optimal structural design under dynamic loads; computer-aided analysis; design and optimization of large-scale mechanical systems; simulation-based engineering: analytical and numerical formulations for kinematics and dynamics of robotic manipulators; design and control of mechanisms including robotic arms; computer-aided engineering applied to detecting and avoiding collisions of solids in space; simulations of multibody dynamics applied to electric and hybrid vehicles; development of theoretical and computational methods for robots to assist surgeons in performing surgery; simulation of mechanisms to study the effect of design sensitivity in kinematics and dynamics; probabilistic fracture mechanics; probabilistic life assessments, and elastic-plastic fracture mechanics; 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 either 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 grade-point average of at least 3.00 on graduate work used to satisfy the degree requirements and must be successful in the final examination. This examination is administered by the student’s committee, which consists of at least three faculty members, including at least one with primary appointment in the Department of Mechanical Engineering. The requirements for the M.S. maybe completed within one calendar year. However, students with assistantship duties or other constraints may take up to two calendar years to complete the degree.

Doctor of Philosophy

Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hours of credit – including research for the dissertation– beyond the baccalaureate degree. Students must pass the qualifying examination administered in the department to be formally admitted to the doctoral program. The student takes the comprehensive examination after passing the qualifying examination and when the course work specified in the plan of study is nearly completed; in any case, the comprehensive examination should be taken no later than 28 months after the first registration in the Ph.D. program. To be admitted to the comprehensive examination, the student must be in good academic standing and must be recommended by his or her advisor. The exam is administered by the student’s committee. Admission to Ph.D. candidacy is recognized upon successful completion of the comprehensive examination. Having satisfactorily completed the exam, the student usually has only to complete and defend the dissertation at the final examination.

Requirements for the Ph.D. degree usually can be completed in three to four years beyond the M.S. degree.

Admission

Students who have earned a baccalaureate or master’s degree in an engineering curriculum or in a curriculum in the mathematical or physical sciences are eligible to be considered for admission to the graduate program in mechanical engineering. In order to be considered for regular admission, the student must have a grade-point average of at least 3.00 on all previous college-level work and minimum Graduate Record Examination (GRE) General Test scores of 500 verbal and 750 quantitative or higher. Students whose native language is not English may substitute a Test of English as a Foreign Language (TOEFL) score of 550 or higher 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 grade-point average of at least 3.00 on an initial registration of 9 semester hours at The University of Iowa. The Graduate College cancels registration for the subsequent semester for students who have not submitted their GRE and/or TOEFL scores by the end of the first regular semester after admission.

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 2 semester hours and 58.191 Graduate Seminar: Mechanical Engineering each semester until successful completion of their final examination or final defense. 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.

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 measurement theory, sensors, signal conditioners, instrumentation, and computer-aided data acquisition systems. The laboratory for mechanical engineering design 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.
The Iowa Driving Simulator (IDS) supports high-fidelity, operator-in-the-loop driving simulation. It provides a highly realistic, fully immersive driving environment that is being used in a broad spectrum of engineering, health science, and highway safety research.

The IDS consists of a large six-degree-of-freedom hydraulic motion platform that supports an 18-foot-diameter dome. High resolution textured images are projected on the inner surface of the dome to provide a wide field-of-view visual image to the driver. A multichannel audio system provides fully directional auditory cues. Force feedback is provided on primary operator controls — steering, accelerator pedal, and brake.

Several dedicated real-time computer systems are used to control the simulator, execute vehicle dynamic simulation models, and represent the dynamic environment in which the driver operates the simulated vehicle. Special purpose computers and machines that support the IDS simulation environment include three Harris-shared-memory, parallel real-time systems (4404, 5808, 6202), a Silicon Graphics Onyx with Reality Engine heads, and an Evans & Sutherland ESIG-2000 Image Generator.

Courses

Special Topics

58:00 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
4 s.h.
Principles of physical measurement; standards calibration; estimation of error; static and dynamic performance of measuring systems; laboratory experience; experiment planning, report writing. Prerequisite: 57:18. Corequisites: 58:42 and 58:52.

58:86 Mechanical Engineering Design Project
3 s.h.
Application of mechanical, thermal, fluid systems design; student or group design projects initiated at various levels in the design process and carried to higher levels; emphasis on synthesis, written and oral communication. Corequisite: 58:48 or 58:55.

58:91 Professional Seminar: Mechanical Engineering
0 s.h.
Professional aspects of mechanical engineering: presentations, student/faculty interaction, professional society involvement, panel discussions, plant trips. Junior standing required.

58:98 Individual Investigations: Mechanical Engineering
arr.
Individual projects for mechanical engineering undergraduate students; laboratory study: engineering design project; analysis, synthesis, simulation of an engineering system; computer software development, research. Consent of advisor required.

General Topics

58:110 Computer-Aided Engineering
3 s.h.
Computer methods for aiding design and analysis of mechanical and structural systems, solid modeling by commercial software, use of commercial finite element codes for applications in computational fracture mechanics and reliability-based design, examples from industry. Prerequisites: 57:19 and 58:52 or equivalents. Same as 55:115.

58:111 Numerical Calculations
3 s.h.
Development of algorithms for functional approximations, numerical differentiation and integration; solution of algebraic and differential equations, with emphasis on digital computations; initial and boundary value problems. Prerequisite: 22M:41. Same as 55:111.

58:113 Mathematical Methods in Engineering
3 s.h.

58:115 Finite Element I
3 s.h.
One- and two-dimensional boundary value problems; heat flow, fluid flow, torsion of bars; trusses and frames; isoparametric mapping; higher order elements; elasticity problems; use of commercial software. Prerequisite: 57:19. Same as 53:133.

58:149 Engineering Optics
3 s.h.
Principles of geometrical and optical imaging; fiber optics; matrix methods; optical systems and devices; Fresnel equations; interference; polarization; diffraction; scattering; absorption; lasers. Prerequisite: 22M:41 and 29:18.

58:212 Analytical Methods in Thermo-Fluid Mechanics
3 s.h.
Power and solution techniques for ordinary and partial differential equations 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.

58:214 Analytical Methods in Mechanical Systems
3 s.h.
Functional analysis applied in mechanics and dynamics; calculus of variations; variational methods such as the Ritz and Galerkin methods; ordinary differential equations; boundary and initial value problems; stability theorems; perturbation of linear systems. Prerequisite: 58:113. Same as 53:214.

58:215 Finite Element II
3 s.h.
Computer implementation: plate and shell elements; mixed and hybrid formulations; nonlinear analysis; recent development; introduction to boundary element method. Prerequisite: 58:133. Same as 53:233.

Thermal Engineering and Fluids

58:40 Thermodynamics II
3 s.h.
Power and refrigeration cycles; mixtures of gases, psychometric mixtures; nonsteady thermodynamics of combustion and chemical equilibrium. Prerequisites: 22M:36 and 57:9.

58:45 Heat Transfer
3 s.h.
Principles of heat transfer by conduction, convection, radiation; analytical and numerical methods of solution; applications to engineering problems. Prerequisite: 57:20.

58:48 Thermal-Fluid Systems Design
4 s.h.
Design of thermal-fluid systems; economic, life-cycle costs, modeling of thermal-fluid system, simulation, and optimization techniques; design projects with oral and written reports. Prerequisites: 57:21, 58:40, and 58:45.

58:140 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.

58:145 Intermediate Heat Transfer
3 s.h.
Steady and unsteady conduction; forced and natural convection; surface and gases radiation; condensation and evaporation, analytical and numerical methods and applications. Prerequisite: 58:45.

58:148 Combustion and Propulsion Engineering
3 s.h.
Chemical kinetics, thermodynamic equilibrium, transport equations; thermodynamics of fluid flows; laminar flames; basic gas turbine cycles; propulsion systems-open gas turbine cycles, turboprop, turbofan, ramjet, supersonic inlet, nozzle flows; contemporary propulsion concepts. Prerequisite: 58:40 or graduate standing.

58:160 Intermediate Mechanics of Fluids
3 s.h.
Basic concepts and definitions; pressure distribution in a fluid; governing equations and boundary conditions; integral and differential analysis; dimensional analysis and similarity; experimental analysis; laminar and turbulent internal and external flows; potential flows; engineering applications. Prerequisite: 57:28. Same as 53:169.
58:162 Experimental Methods in Fluid Mechanics and Heat Transfer 3 s.h.
Review of theory; importance of experiments; modeling and scaling laws; experimental environment and facilities; measurements at full scale and on scaled models; use of wind and water tunnels, towing tanks, and hydraulic flumes; instruments for measuring pressure, temperature, velocity, turbulence; error analysis; data acquisition and processing; laboratory demonstrations, hands-on experiments; project. Prerequisite: 58:80 or equivalent. Same as 53:572.

58:165 Elements of Gas Flows 3 s.h.
Thermodynamics of compressible fluid flow, with applications to continuous, momentum, energy equations; normal and oblique shock waves; Prandtl-Meyer expansion waves; flow with variable and constant area. Fanflow, compressible flow with and without heat transfer. Prerequisites: 57:20 and 58:40.

58:167 Aerodynamics 3 s.h.
Equations of fluid motion; inviscid-flow theory; airfoil and wing parameters; thin and thick airfoil theory; viscous effects; laminar and turbulent boundary layers; flow over finite, unswept, swept, planar, and delta wings; compressible subsonic and transonic flow past airfoils, supercritical airfoils. Prerequisites: 22M:41 and 57:20.

58:245 Conductive Heat Transfer 3 s.h.
Heat conduction and diffusive transport of mass and momentum; phenomenological laws and analogies; differential and integral formulation of boundary layers–equations, solution methods, applications; stability of numerical solution techniques; reverse heat conduction; coupled heat and mass diffusion; diffusion in multiphase and multicomponent systems. Prerequisite: 58:145.

58:246 Convective Heat Transfer 3 s.h.
Convective heat transfer; analysis of forced and free convection; direct and natural formulation of boundary layers; heat, mass, momentum transfer in laminar and turbulent flows inside tubes and external surfaces; combined forced and free convection; convection at high velocities; heat transfer with phase change. Prerequisite: 58:145.

58:247 Radiative Heat Transfer 3 s.h.
Radiant energy transport and analysis of radiative interchange among surfaces separated by nonparticipating and participating media; radiation boundary conditions for solids, gases, pyrolysis; combined radiation-conduction and radiation convection heat transfer. Prerequisite: 58:145.

58:248 Combustion Theory 3 s.h.
Laminar flame theory; turbulent combustion; spray combustion; thermal ignition; pollutant formation, oxidation; combustion diagnostics. Prerequisites: 58:145, 58:160, and graduate standing.

58:260 Viscous Flow 3 s.h.
Equations of viscous flow; classical analytical and numerical solutions; flow regimes and approximations; laminar boundary layers–equations, solution methods, applications; stability theorems and transitions; incompressible turbulent flow–mean flow and Reynolds-stress equations, modeling, turbulent boundary layers and free shear flows. Prerequisite: 58:160. Same as 53:276.

58:262 Inviscid Flow 3 s.h.
Derivation of governing equations for fluid flow; general theorems for motion of inviscid, incompressible flows; solution techniques for two- and three-dimensional inviscid flows; forces and moments acting on immersed bodies; inviscid flow with vorticity inviscid compressible flow; numerical methods for solution of inviscid flows. Prerequisite: 58:160. Same as 53:277.

58:265 Waves in Fluid 3 s.h.
Acoustic wave theory; general solutions of plane, cylindrical, spherical waves; reflection and refraction of sound waves; kinematic waves; shallow water waves; hydraulic jump, infinitesimal wave theory; Kelvin ship wave patterns; nonlinear water waves; propagation of solitary waves; internal gravity waves. Prerequisites: 58:113 and 58:160.

58:267 Multiphase Flow and Heat Transfer 3 s.h.
Basic models; adiabatic two-phase flow; Poisson, convective boiling, condensation; multiphase boiling, condensation; mathematical modeling; instantaneous equations, instantaneous space-averaged equations, local time averaged equations; gas-solid flows; liquid-solid flows. Prerequisites: 58:145 and 58:160.

58:268 Turbulent Flows 3 s.h.
Origin; need for modeling, averages, Reynolds equations, statistical description; experimental methods and analysis; turbulent models; turbulent boundary layers and boundary layer flows; complex shearflows; development of computational strategies; recent literature on theory and applications, chaos phenomena. Prerequisite: 58:160.

58:269 Computational Fluid Dynamics and Heat Transfer 3 s.h.
Development of numerical and algebraic approximations for elliptic, parabolic problems; numerical methods; finite volume, spectral, pseudo-spectral, Galerkin techniques; stability of numerical methods; CFL condition; stiff problems; adaptive grid generation and boundary fitted coordinates; numerical solutions for one and two-dimensional compressible and incompressible flow and heat transfer problems. Graduate standing required. Prerequisites: 58:111.

58:296 Advanced Topics in Thermal and Fluid Engineering 3 s.h.
Thermodynamics, fluid mechanics, heat and mass transfer, related experimental and analytical techniques; selection of subject and content determined by instructor/student interest. Graduate standing required.

Mechanical Systems

58:52 Mechanical Systems 3 s.h.
Topics in stress, deflection, stiffness, stability, vibration; material behavior, manufacturing processes, static and variable loads, fatigue strength in design analysis of mechanical systems; introduction to finite element analysis using established software. Prerequisites: 58:113 and 57:21.

58:55 Mechanical Systems Design 4 s.h.
Design considerations for mechanical engineering systems: strength, deformation, durability of mechanical elements; safe life, fail safe, damage-tolerant design, standards, products liability, ethics in design; data acquisition/life prediction experiment. Prerequisite: 58:52.

58:131 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 compensator design; computer simulation. Prerequisites: 22M:41 and 57:12.

58:133 Control Theory 3 s.h.
State space approach; controllability, observability, canonical forms, Liebner's observer, feedback control via pole placement, stability, minimal realization and optimal control. Prerequisite: 55:60 or 58:131. Same as 55:160.

58:134 Computer-Based Control Systems 3 s.h.
Discrete and digital control systems; application of computers in control, sampling theorem, discrete time system models, analysis and design of discrete time systems, parameter estimation, examples of optimal and adaptive controls; lab arranged. Prerequisite: 55:60 or 58:131. Same as 55:164.

58:150 Intermediate Mechanics of Deformable Bodies 3 s.h.
Application of equilibrium analyses, strain displacement relations, and constitutive relationships to practical structural systems and elementary structural mechanics problems. Prerequisite: 57:19. Same as 51:151, 53:140.

58:151 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 computational methods for large scale systems. Prerequisites: 57:10 and 58:58.

58:152 Vehicle Dynamics and Simulation 3 s.h.
Vehicle dynamic response; suspension, steering, braking, and powertrain system design; computer-aided system simulation; tire modeling; acceleration and steady-state turning performance. Prerequisites: 57:19. Corequisites: 57:17. Prerequisite: 57:19. Same as 51:151, 53:140.

58:153 Fundamentals of Vibrations 3 s.h.
Vibration of linear discrete and continuous mechanical and structural systems; harmonic, periodic, and arbitrary excitation; dynamic, static, and stability problems. Prerequisite: 57:19. Same as 51:151, 53:140.

58:154 Planar Kinematics and Dynamics of Machines 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; endooro theory of plasticity. Prerequisite: 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.

58:257 Theory of Viscoelasticity 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.

58:258 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; endooro theory of plasticity. Prerequisite: 58:251 or equivalent. Same as 53:246.

58:259 Mechanical Design in Structures 3 s.h.
Discrete and continuum variational equilibrium equations, discrete design sensitivity analysis for static responses and eigenvalues, interactive design workstations, continuum finite element 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.
Graduate Seminars, Advanced Topics, Research

58:190 Readings in Mechanical Engineering arr.
For nonengineering majors who want credit in undergraduate engineering courses. May be repeated. Graduate standing required.

58:191 Graduate Seminar: Mechanical Engineering O s.h.
Presentation and discussion of recent advances and research in mechanical engineering by guest lecturers, faculty, students. Graduate standing required.

58:195 Contemporary Topics in Mechanical Engineering arr.
New topics in fluid and thermal sciences and mechanical systems not covered in other courses; topic and coverage determined by student/faculty interest. Junior standing required.

58:198 Individual Investigations: Mechanical Engineering arr.
Individual project in mechanical engineering, for department graduate students; laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Graduate standing and consent of adviser required.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in mechanical engineering. Graduate standing and consent of adviser required.

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 dean: James F. Jakobsen
Assistant deans: Sandra Barkan, 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 Accountancy (M.Ac.), Master of Arts in Teaching (M.A.T.), Master of Fine Arts (M.F.A.), Master of Physical Therapy (M.P.T.), Educational Specialist (Ed.S.), Master of Science in Nursing (M.S.N.), Master of Social Work (M.S.W.), Master of Physician Assistant Studies (M.P.A.), 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.Ac. **

African American World Studies –M.A.*

American Studies–M.A.*, Ph.D.

Anatomy –M.S., Ph.D.

Anthropology -M.A.*, Ph.D.

Applied Mathematical and Computational Sciences– Ph.D.

Ar–M.A., M.F.A.

Art History -M.A.*, Ph.D.

Asian Civilizations –M.A.*

Astronomy –M.S.*

Biochemistry -M.S., Ph.D.

Biography -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.*, Ph.D.

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.***

Music–M.A.*, M.F.A., D. M.A., Ph.D.

Neuroscience – Ph.D.

Nursing–M.S.N.*, 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.S.*, 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.

Sport, Health, Leisure, and Physical Studies –M.A.*, Ph.D.

Statistics –M.S.*, Ph.D.

Stomatological–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 previously 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.

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” 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.

Immunology

The doctoral program in immunology provides interdisciplinary training in the concepts and methodologies of basic and applied immunology. See “Immunology” in the College of Medicine section of the Catalog for a listing of faculty and program description.

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 de 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 psychoanalysis. Students discuss the evolution of the early cinema; the silent films of Griffith, Lang, Eisenstein, and Keaton; the classic Hollywood film; French cinema during and after the transition to sound; and European and American avant-garde cinemas. Participants study the works of Metz, Freud, Barthes, Lacan, Althusser, Foucault, and others to gain an understanding of contemporary French culture, mass media, and the visual arts.

The Contemporary Criticism and Culture Program focuses on recent developments in French political thought and social institutions, linguistics, social sciences, and literary theory. It draws on recent theoretical concepts in the fields of linguistics, psychoanalysis, anthropology, history, and philosophy to analyze verbal and audiovisual representations in literature, painting, photography, film, and television. The interdisciplinary nature of this program makes it relevant not only to French majors but also to students of other disciplines concerned with the problems of criticism and culture. It is of particular value to those who want to explore the applicability of modernist French theory to a variety of disciplines.

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 their social, economic, and cultural development of groups of ordinary people, seen in their urban or regional contexts.

Students may concentrate in one of these programs entirely or develop an individual program combining elements from both study center components.

Participating students are registered in the University of Paris III – Censier and are eligible to take selected courses within the University of Paris as well as those 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 Law and Graduate Degree Programs

Joint programs under which students can simultaneously pursue degrees in the College of Law and the Graduate College have been developed with the law college and a number of departments in the Graduate College. See the College of Law section of the Catalog.

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, involving members of the Departments of Biological Sciences, Biochemistry, Internal 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.

Third World Development Support

The Master of Arts program in Third World Development Support has an interdisciplinary focus, emphasizing social science approaches to the problems of economic and social development in Third World countries. The program emphasizes a combination of research and technical assistance. For a list of faculty and description of the program, see “Third World Development Support” 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 planning, environmental 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.

Certificate Programs

Aging Studies Program

The Aging Studies Program is a multidisciplinary nondegree program administered 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.

American Indian and Native Studies

The interdisciplinary certificate program in American Indian and native studies focuses on the histories, cultures, languages, arts, crafts, beliefs, political and social organizations, economies, geographies, literatures, and contemporary legal and political concerns of Native Americans of the United States as well as other indigenous peoples of the Western Hemisphere. Successful completion of the program is noted on the student’s transcript. See “American Indian and Native Studies” in the College of Liberal Arts section of the Catalog for a list of faculty and program description.

Book Studies/Book Arts and Technologies

The certificate program in Book Studies/Book Arts and Technologies offers an interdisciplinary approach to the study of the relationship between the history of the book and book arts and technologies. It also provides the opportunity for focused laboratory or academic investigation into either area. Successful completion of the program is noted on the student’s transcript. See “Center for the Book” in the College of Liberal Arts section of the Catalog for
information about the center’s faculty and the certificate program.

**Rhetorics of Inquiry**

Rhetorics of Inquiry is an interdisciplinary certificate program intended to help students develop their skills of inquiry, writing, and teaching, both within their own disciplines and across the humanities, social sciences, and the learned professions. Successful completion of the program’s requirements is entered on the student’s transcript. See “Project on Rhetoric of Inquiry” in the Special Resources at Iowa section of the Catalog; for a description of the certificate program, see “Rhetorics of Inquiry” in the Liberal Arts section of the Catalog.

**Sacred Music**

The interdisciplinary certificate program in sacred music combines course work in music, religion, art history, and history. Successful completion of the certificate program is entered on the student’s transcript. For more information contact the School of Music.

**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 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 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 $10,500 and $13,500 for half-time assistants; assistants also are eligible for tuition scholarships. Assistants (one-quarter time or more) are classified as residents for fee purposes.

**Graduate Student Senate**

The Graduate Student Senate is the University graduate student body representative organization. Representatives are elected annually from each University department that has a graduate degree program. The senate’s primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The senate advises the dean of the Graduate College on matters pertaining to the college.

**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.

**Iowa Incentive Fellowships**

One-year awards for doctoral students new to graduate study at The University of Iowa; 12-month stipend of $12,000, with all tuition paid; no departmental service obligations.

**Graduate Opportunity Fellowships**

For first-year graduate students from underrepresented ethnic minority groups; one-year stipend of $10,000 plus tuition for the academic year.

**The University of Iowa Fellowship Program**

For first-year graduate students entering doctoral programs; typical stipends are $16,000 per year on a year-round basis, with all tuition paid, for as many as four years; departmental participation assures that the recipient will be involved in teaching, research, and departmental affairs; in two years out of four and in all summers, recipients may pursue studies, research, or writing full time.

**Scholarships**

Scholarships provide up to full tuition and fees.

**Graduate College Fellowships**

Graduate College fellowships provide $10,000 for the academic year.

**Other Sources**

For other sources of financial support, see “Financial Aid” in the Learning at Iowa section of the Catalog or consult the Office of Student Financial Aid.

Many departments offer additional support through traineeships, part-time employment in research, or part-time teaching appointments. The Office of the Vice President for Research maintains a library of information on public and private agencies that provide funds for research and graduate study. Much material has been collected concerning awards for overseas study.

**Rules and Regulations of the Graduate College**

The following text is from the Manual of Rules and Regulations of the Graduate College.

**The Academic Program**

**Section 1. 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.

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.

G. 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. MINIMUM 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 non-doctoral 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, 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 semester 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 take for limited or 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 APPINTEES

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 ten semester hours during a semester or five semester hours during the eight-week summer session.
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.)

I. 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 open to and carrying credit for both graduate and undergraduate 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.
D. DEPARTMENTAL REGULATIONS AND DISSEMINATION OF INFORMATION

In addition to the above University-wide requirements, departments may establish further requirements which then determine the individual student’s standing with regard to probation and dismissal. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each departmental office and the office of the Graduate College dean. Copies are to be available for students in the departmental office, and departments shall make all reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated by the department to each student and the Graduate College dean. Whenever departments revise standards for a given program, the new regulations will not apply retroactively to the disadvantage of those already in the program. In addition to notifying students that they are subject to the rules of the Graduate College as set forth in the Manual of Rules and Regulations, any standards established by the department more stringent than the general Graduate College requirements shall be stated. Information shall be provided outlining required courses applicable to the various departmental programs of study, examination procedures and other formal evaluations, departmental policies with regard to awarding and renewing assistantships, time limits on programs of study, departmental registration policies, departmental grade-point requirements, requirements for changing from one degree program to another within the department—especially from the master’s to the Ph.D. – departmental probation and dismissal policies and procedures (see “E” following), and other matters as are appropriate. The nature of the departmental advisory system shall be explained to incoming students.

E. ACADEMIC PROGRESS, DEPARTMENTAL PROBATION, AND DISMISSAL PROCEDURES

If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in what way(s) the student is failing to meet the standards. The student shall be provided a reasonable amount of time to meet the standards prior to departmental dismissal. If conditions such as conditional admission or probation are imposed, the department shall give, at the time of its imposition, written explanation of this status and its time limits.

A student who will not be permitted to reregister for failure to meet standards shall be notified of this fact in writing with reasons for the action provided. Such dismissal may follow failure to meet conditions of admission, conditions of probation, pre-announced departmental grade-point requirements or other standards, or failure of a regularly scheduled examination or formal evaluation. If a student judges the dismissal decision improper, the student has a right to review. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean and shall afford a fair and expeditious review. A description of these procedures shall be included in the departmental regulations described above. (See “Section IV.D.”)

F. 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 Graduate College committee, consisting of both student and faculty members, to conduct the review and recommend to the dean possible courses of action. The review by the Graduate College is final.

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. (See “Section X. E.” and “Section XII.F.”, Reduction of Old Credits.)

B. RESIDENCE TRANSFER CREDIT

After admission to a departmental program in the Graduate College, residence graduate credit from another Iowa Regents’ university may be counted as residence credit at this institution, provided such work is acceptable to the student’s major department on the basis of the department’s determination of its applicability toward the degree. (See “Sections X. D.” and “XII.C.” for minimum semester hours required on campus for the master’s and doctor’s degrees, and “Sections X.E. and XII.F.”, Reduction of Old Credits.)

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.

F. MARKS CARRYING NO GRADUATE CREDIT


G. MARKS CARRYING GRADUATE CREDIT


H. 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.

I. INCOMPLETE

Students who complete the twelfth week of the course for which registration is to be reported to the registrar by individual instructors on the above basis except that less or zero credit may be assigned.

Section VI. Marking System

A. MARKS CARRYING GRADUATE CREDIT


B. MARKS CARRYING NO GRADUATE CREDIT

These are D+, D, D-, F, I—Incomplete, W—withdrawn without discredit, R—registered, and U—unsatisfactory.

C. AUDIT

R is assigned when a student registered for zero credit attends as an auditor throughout the course; if the student fails to meet the instructor’s requirements for class attendance, W is assigned.

D. INCOMPLETE

The grade of I is to be used only when a student’s work during a semester 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.

E. THESIS, RESEARCH, READINGS, INDEPENDENT STUDY, AND SPECIAL PROJECTS

Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S—satisfactory means that the student receives credit for the work:
U – unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, departments may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. 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.

G. COMPUTED GRADE-POINT AVERAGE
This is based only upon graduate work graded A+ = 4.33, A = 4.00, A- = 3.67, B+ = 3.33, B = 3.00, B- = 2.67, C+ = 2.33, C = 2.00, C- = 1.67, D+ = 1.33, D = 1.00, D- = 0.67, and F = 0. Although a grade of A+ has a value of 4.33 in computing a student’s 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 professional members of the academic staff and to provide apprenticeship experience for graduate students who are in training in research. Not more than 20 hours of service per week are required of a half-time assistant. Other part-time service is scaled in proportion, and a limited academic schedule is permitted (see “Section II.D”). Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other periods of time by special arrangement. Stipends vary with the qualifications of the appointee and the amount of service rendered. 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 or 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 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.

1. OTHER FORMS OF SUPPORT
Many departments offer financial assistance in the form of traineeships, part-time employment on research programs, or part-time teaching. Inquiries should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College
The major areas in which the Graduate College offers degree programs are listed under “Degree Programs” at the beginning of this section of the Catalog.

Section IX. General Requirements for Advanced Degrees
A. APPLICATION FOR DEGREE
The student must file an application for an anticipated degree with the registrar 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, except as noted in the following paragraph. Students 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% 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 Accountancy degree, Master of Arts in Teaching degree, Master of Science in Nursing 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 conferred 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 simulataneously 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-semiester-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, two copies 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.”)

1. 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. It will be evaluated by the examining committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the committee report unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the examination.

If the department so recommends, a candidate who fails the examination may present himself or herself for reexamination, but not sooner than the next regularly scheduled examination period in the following session.

The examination may be repeated only once. A student must graduate within one calendar year after passing the final examination for a master’s degree; failure to meet this deadline will require reexamination of the student.

Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for the master’s examination.

K. EXAMINING COMMITTEE
The examining committee for the master’s degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program, at least two of whom are from the major department. If the examination covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee, and, at his or her discretion, the Graduate College dean may add a member to the committee.

Section XI. Two-Year Degrees

A. MASTER OF FINE ARTS DEGREE
This degree is awarded for creative work in the visual arts, dramatic art, music, dance, or literature. It is designed for students preparing themselves professionally in such fields as painting, design, mural decoration, sculpture, playwriting, acting, producing, stage design, musical performance, composition, instrumentation, choreography, poetry, fiction, translation, and film and video production.

Central to the program, the thesis may consist of a novel, a painting, a play, a musical composition, a dance performance, a film or video, or any other approved artistic accomplishment.

The program for the Master of Fine Arts requires at least two years of residence credit in a graduate college. This requires a minimum of 48 semester hours of graduate credit, at least 24 of which must qualify for residence credit at this university. A Master of Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for each degree separately, with a minimum combined total of 60 semester hours of graduate credit.

For other requirements, see “Section X.B. Plan of Study”; “C. Major and Related Fields”; “E. Reduction of Old Credits”; “H. Master’s Degree with Thesis”; “J. Final Examination”; and “K. Examining Committee.”

B. SPECIALIST IN EDUCATION DEGREE
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 of 60 semester hours required for the degree, at least 24 semester hours must be completed in residence at this university, of which 15 semester hours must be earned while the student is on campus within one 12-month period or during two summer sessions. Twenty-eight of the 60 semester hours are prescribed in the area of specialization. The others are in cognate fields, supervised experience, and electives. Four semester hours of research culminate in a written report.

Courses successfully completed ten or more years prior to the final 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.

Other requirements and regulations applicable to the educational specialist degree are the same as described 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 final 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 X11. Doctor% 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 marked excellence 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 residence in a graduate college.

At least part of this residence must be spent in full-time involvement in one’s discipline, at this university, beyond the first 24 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.

I. 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 departments.

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 passed not later than the session prior to the session of graduation. This examination, administered only on campus, is intended to be an inclusive evaluation of the candidate’s mastery of the major and related fields of study, including the tools of research in which competence has been certified.
The comprehensive examination is not a deferred qualifying examination. It is intended to evaluate the candidate's mastery of the subject at or near the end of his or her formal preparation and prior to the completion of the dissertation. The comprehensive examination and the final examination, which is concerned chiefly with defense of the thesis and related subjects, are the two principal examinations for the 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 reenrolled until he or she has submitted a new application that had 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 before the graduation date on which the degree is to be conferred.

Two copies of the approved dissertation must be deposited at the office at least ten days prior to the graduation date. The final deposit can be no later than the end of the semester (summers excluded) following the session in which the final examination is passed; failure to meet this deadline will require reexamination of the student.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. An abstract of the dissertation, not to exceed 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor. The abstract is published in the journal of Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University's Main Library.

If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the librarian will help the student and faculty adviser work out an appropriate method of preparing the work, if such help is needed. Once the accompanying manuscript is accepted, it is treated the same as any other thesis. Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

M. DISSERTATION FEE

A nonrefundable dissertation fee is charged each candidate to cover the cost of processing the dissertation and abstract.

N. FINAL EXAMINATION

The work for the degree culminates in a final oral examination administered on campus. This examination should include: a critical inquiry into the purposes, methods, and results of the investigation — not a mere recapitulation of the procedures followed – and intensive questioning on areas of knowledge constituting the immediate context of the investigation.

The final examination may not be held until the next session after the student passes the comprehensive examination nor until the thesis is accepted for first deposit by the Graduate College; however, a student must pass the final examination no later than five years after passing the comprehensive examination. Failure to meet this deadline will result in a reexamination of the student to determine his or her qualifications for taking the final examination. The procedures to be followed are the same as those for the comprehensive examination. (See “XII.J. Comprehensive Examination.”)

Final examinations for the doctorate are open to the public. Members of the faculty of the

Graduate College are especially invited to attend and, subject to the approval of the chair, to participate in the examination.

The report of the final examination is due in the Graduate College office not later than 48 hours after the examination. The final examination will be evaluated as satisfactory or unsatisfactory. Two unsatisfactory votes will make the committee report unsatisfactory. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the major department.

O. 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 maybe added at the discretion of the Graduate College dean.

Section XIII. Exceptions

Petitions to waive these regulations maybe made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>000:000</td>
<td>Ph.D. Postcomprehensive Registration</td>
<td>0.s.h.</td>
</tr>
<tr>
<td>000:001</td>
<td>Master's Final Registration</td>
<td>0.s.h.</td>
</tr>
<tr>
<td>000:800</td>
<td>CIC Scholar</td>
<td>arr.</td>
</tr>
<tr>
<td>000:997</td>
<td>Graduate/Professional Transfer</td>
<td>arr.</td>
</tr>
<tr>
<td>000:999</td>
<td>Res/Fellow/Post-Doc</td>
<td>0.s.h.</td>
</tr>
</tbody>
</table>
At work in the Theatre Body Shop
College of Law

Dean: N. William Hines Jr.
Associate deans: Arthur E. Bonfield, Patricia A. Cain, Burns H. Weston
Assistant dean: Camille deJorna

Associate professors: Marcella David, Mark Janis, Barry D. Matsumoto, Margaret Raymond, Merle Weiner
Clinical faculty: Patricia Acton, John S. Allen, Lois K. Cox, Reta Noblett-Feld, Leonard A. Sander, Barbara A. Schwartz, John Whiston
Lecturers: Henry Horwitz, John Jarvis, Nicholas Johnson, Philip A. Left, Barry A. Lindahl, Maria Lukas, Linda A. McGuire

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 upon its graduates the degree of Juris Doctor (J.D.). Students may elect a joint degree program, simultaneously earning both a law degree and a master’s degree in the Graduate College. Persons who hold a J.D. may pursue the LL.M. in International and Comparative Law.

A law degree from Iowa is a highly respected credential in the job market; Iowa graduates hold prominent positions on the bench, in the bar, in government, in business, and in education throughout the country.

**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.

Full-time students 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. AH 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 by November 1 of the year they begin 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.

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 in writing and 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 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, Journal of Gender, Race, and Justice, 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. 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, inmates 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 Programs

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 (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 their clients of legal alternatives.

The in-house 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 laypeople.

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, 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.

**JOURNAL OF GENDER, RACE, AND JUSTICE**

This journal, new in academic year 1996-97, offers students the opportunity to conduct research and write scholarly articles on selected topics in civil liberties. Students earn academic and writing credit for completed writing and for service on the journal’s editorial board.

**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 spring 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. Students participating in the program register for 000:824 London Law Consortium (arr.).

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 offered for four weeks in May and June and are taught in English by professors from Iowa and Bordeaux. Application deadline is March 1. Students participating in the program register for 000:823 Program in Comparative Law in Bordeaux, France (arr.).

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 Donald P. Lay 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 Plaques 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.

Special Resources

The Iowa Law Library

The centerpiece of the Boyd Law Building is The University of Iowa Law Library, which occupies space on four floors and is one of the major repositories of legal materials in the United States. Iowa’s collection currently is ranked eighth in the number of volumes and volume equivalents and the fifth in the number of titles among all U.S. law school libraries. It contains 806,534 volumes and volume equivalents and covers a full range of Anglo-American, foreign, international, and comparative law. The library contains in-depth collections on law of the United States and of every state and territory. Its collection of early English legal source materials and 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. The 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 other indexes are available on workstations 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 OCLC, the Online Computer Library Center, for online cataloging, catalog card production, and interlibrary loans. RLIN’s law library programs include 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. The library is also part of RLIN, the Research Libraries Information Network.

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 résumés; 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 writing center provides writing assistance to all students. The center is staffed by professional writers and is open to all students. The center provides individual advising and group workshops.

Financing a Legal Education

The College of Law is committed to helping students finance their legal education. Financial aid consists of scholarships, grants, and loans. Second- and third-year students also may find research assistant positions as well as college work-study and other part-time employment positions. The college is fortunate to have a 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.

Merit Fellowships and Scholarships

Students who have excelled academically may be eligible for a Merit Fellowship or a Merit Scholarship. A limited number of each are awarded. The Merit Fellowship award provides full tuition for three years and a research assistant position for the second and third year; the amount of the Merit Scholarship varies based on the availability of funds. All admitted students are considered for both the fellowship and scholarship; a separate application is not required. Recipients are notified by letter. To renew either a Merit Fellowship or a Merit Scholarship for the second and third year, students must maintain a class rank at least in the top 25 percent.

Iowa Law School Foundation Scholarships

The University of Iowa Law School Foundation Scholarships are based on a combination of need and merit. They are awarded, as funds are available, to a limited number of students who meet the criteria established by the scholarship donors. All admitted students who apply for financial aid through the FAFSA process are considered for need-based foundation scholarships, and all admitted students are considered for the merit-based scholarships; a separate application is not required. Scholarship recipients are notified by letter of their award.

Application for Federal Student Aid (FAFSA) should be filed as soon as possible after January 1 for the upcoming academic year. Although financial aid awards are not made until after the applicant is admitted to the College of Law, applicants should not wait for the notice of admission before filing the FAFSA. Students are informed of their eligibility for financial aid on the award notification letter. Students may reapply for aid every year.

Scholarships and Fellowships

Iowa Law School Foundation Scholarships

The University of Iowa Law School Foundation Scholarships are based on a combination of need and merit. They are awarded, as funds are available, to a limited number of students who meet the criteria established by the scholarship donors. All admitted students who apply for financial aid through the FAFSA process are considered for need-based foundation scholarships, and all admitted students are considered for the merit-based scholarships; a separate application is not required. Scholarship recipients are notified by letter of their award.

Law Opportunity Fellowship

The College of Law is committed to enhancing diversity within the student body as well as the faculty and staff. In order to increase diversity among its students, The University of Iowa College of Law has committed a significant level of funding for students from minority groups that historically have been underrepresented within the legal profession. Considerations in awarding the fellowship include, but are not limited to, educationally and/or socioeconomically disadvantaged backgrounds, financial need, and academic merit. The Law Opportunity Fellowship provides full tuition for three years and a research assistant position for the second and third year. All admitted students who apply for financial aid through the FAFSA process are considered for the Law Opportunity Fellowship; a separate application is not required. Recipients are notified by letter.
Employment
The College of Law discourages student employment during the first year in law school, due to the intensive first-year course schedule.

Research Assistantships
Research assistantships are available with many faculty members for second- and third-year students. Students classified as nonresidents who hold quarter-time research assistantships (10 hours per week) automatically qualify for resident tuition status during the semester(s) in which they hold a research assistantship.

UI Part-Time Employment
The University offers a variety of part-time employment positions for students. Students do not need to apply for financial aid in order to qualify for these positions. Information about part-time positions is available through the University’s Student Information Services Jobnet.

College Work-Study
Federal College Work-Study is available for a limited number of students in their second and/or third year at the law college. College Work-Study awards enable students to hold one of a variety of University of Iowa work-study positions. College Work-Study may reduce the student’s Federal Direct Stafford/Ford Loan eligibility. Students must qualify for work-study through the FAFSA process.

Community Employment
Many jobs are available throughout the local community. Students should contact employers directly.

Loans

Iowa Law School Foundation Loan, Federal Perkins Loan
These are low-interest loans based on exceptional financial need. Interest does not accrue and payments are not required until the student is no longer enrolled at least half-time in school.

Stafford/Ford Loans
The Federal Direct Subsidized Stafford/Ford Loan is a low-interest loan based on financial need. Interest does not accrue and payments are not required until the student is no longer enrolled at least half-time in school. The interest on the Federal Direct Unsubsidized Stafford/Ford Loan accrues while a student is in school; however, both principal and interest payments may be deferred while the student is in school.

The interest rates for Federal Direct Subsidized and Unsubsidized Stafford/Ford Loans are variable and are adjusted annually. The rates are tied to the rate for 91-day Treasury bills plus 3.1 percent. The interest rate for the 95-96 academic year was 8.25 percent.

All admitted students who applied for financial aid through the FAFSA process are considered for the Iowa Law School Foundation Loan, the Federal Perkins Loan, and the Federal Direct Stafford/Ford loans.

Grad Access, Law Student, and Iowa Partnership Loans
The Grad Access Loan, the Law Student Loan, and the Iowa Partnership Loan are private loan programs for students whose cost of attending law school has not been met through other sources of financial aid. A separate application is required, and a credit check is part of the process to determine eligibility.

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 that College of Law graduates may be called upon to perform are so varied, and the possible fields of endeavor so broad and diverse, that the college prescribes no uniform undergraduate program for those planning to enter law school. With the assistance of faculty advisers, each student should develop an undergraduate program that explores and develops that student’s particular intellectual interests.

The Grad Access Loan, the Law Student Loan, and the Iowa Partnership Loan are private loan programs for students whose cost of attending law school has not been met through other sources of financial aid. A separate application is required, and a credit check is part of the process to determine eligibility.

Application Procedures and Materials
Candidates for admission should submit their application as soon as possible after September 1 of the year preceding matriculation. Applications are not reviewed by the Admissions Committee until all required materials are received. Generally, applications are evaluated and decisions are made on an ongoing basis, with each application considered according to the order in which it was received. Admissions decisions are made selectively, primarily on the basis of applicants’ demonstrated academic promise for success as reflected in their undergraduate grade-point average and LSAT score. Other evidence of academic promise is reviewed in a number of review processes. Applicants who are urged not to sacrifice the broader perspective for detailed specialization.

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. Applications submitted after the March 1 deadline may be considered 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.

Application materials, including the LSDAS registration packet, may be obtained by writing to the Director of Admissions, The University of Iowa.

Admission is for the year of application; deferrals are granted only in extraordinary circumstances.

Transcripts
Applicants are responsible for submitting an official transcript from each college or university they have attended to Law Services, Box 2000, Newton, PA 18940-0998. Applicants whose fall course work does not appear on the LSDAS report should send an official transcript of that course work to the University’s Office of Admissions. Applicants who are already University of Iowa students or are not registered for fall classes are exempt.

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 December test date is the last one that the admissions committee recommends for applicants requesting admission the following summer or fall. The February test date may put 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.
Courses Taken outside the College of Law
Students who take courses outside the College of Law must first obtain permission from the assistant dean. If "special permission of the instructor required" is indicated in the Schedule of Courses, the student also must obtain the instructor's signature.

Students not enrolled in a joint degree program may apply toward the J.D. a maximum of 6 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 Office of the Registrar.

Courses Taken at Another Law School after Enrollment at Iowa
With the permission of the dean, enrolled students may receive credit for courses taken and passed at other ABA-accredited law schools, up to a maximum of 30 semester hours. Grades of C and higher are reflected on the student's transcript as credit for the designated semester hours. Grades of D are reflected as a 63 on the Iowa transcript.

Externships
Students may be able to arrange externships for academic credit with certain nonprofit organizations and government agencies. Most externships are established for the summer, for a maximum of 6 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 or for grades of "fail." Numerical grades can 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.

"M" means measures subject to appropriate due process.

Grading Policy
Numerical grades can 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.

“M” 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 M may be reported only in exceptional cases and only if the unfinished part of the work is small and is unfinished for reasons acceptable to the instructor, and if the student’s standing in the course is satisfactory. Students remove an incomplete by completing the unfinished work during their next period of residence.

Class Ranking
Students in the top 10 percent in each class may be informed of their exact rank, grade-point averages at the 87.5 percentile and 62.5 percentile are posted.

Students are ranked following the fall semester, spring semester, and summer session each year. Final class standing is 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 Transcript
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
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, or 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.

**Drop/Add Policy**

Students may add or drop a regularly scheduled course or seminar during the first two weeks it meets. After the first two weeks, students must have consent of the instructor to add or drop a course.

Students may not drop a course once the final examination in the course has been distributed. Individual instructors may set a policy of not permitting drops past a certain time limit, except in hardship cases; they are encouraged to distribute written notices of their policies during the first week of class.

A student who, after two weeks, drops an elective course for reasons not related to hardship may not re-enroll in the course in a later semester without the instructor’s permission.

Students who wish to drop Appellate Advocacy 11 without showing cause may do so prior to the distribution of the problem and the finalization of participants in their rounds. After the problem has been distributed, only the faculty adviser may authorize a drop and then only upon show of cause.

**Withdrawal**

First-year students who withdraw during the academic year or who fail to 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. (Students are considered first-year if they have fewer than 27 semester hours of credit at the time of withdrawal or failure to 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.

**Audit**

Students may audit a class with the instructor’s permission, provided the class is not filled within the preregistration period.

**Student Conduct**

Students are expected to act in a manner appropriate at a professional school. An act or omission that is dishonest or designed to take unfair advantage may subject a student to sanctions as serious as expulsion from school.

**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 formats: IBM-DOS and MS-DOS using WordPerfect 6.1 for Windows and WordPerfect 5.1 and Macintosh OS 5/6 using Microsoft Word. The IBM computers available for students have 3.5-inch high density floppy disk drives. The Macintosh machines can accommodate one 3.5-inch disk. The college does provide limited facilities to convert DOS 3.5-inch disk as well as 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

AALS (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.

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 college-wide 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 Day

Each fall, the parents, spouses, and friends of all students are invited to the campus for activities sponsored by the Iowa Student Bar Association. 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 law school’s alumni magazine, Iowa Advocate, is published twice a year. It features articles and news about the college and its alumni, faculty, and students.

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 student-edited law journals, and 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 understanding the law.

91:104 Civil Procedure 2-6 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 of and relationships among branches of national government, relationship between state and national governments.

91:120 Contracts and Sales Transactions I 3-4 s.h.
 Purpose, scope, development of contract laws; principles of contract law; remedies for breach of contract.

91:121 Contracts and Sales Transactions II 3-5 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 the criminal law; role of the defense, and principles of criminal law; constitutional protection of private property from governmental influence.

91:126 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, social, 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 private property by private agreement, common-law doctrine, public regulations; social, political, and legal aspects of the law of real property; economic, 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 O 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 s.h.
 Constitutional law on Fourth, Fifth, and Sixth Amendment regulation of police investigatory practices, including searches and seizures, 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.
 Problems of law and policy in the world community; 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 30:177, 47:195.

91:195 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, controversies. Same as 30:175, 47:195.

91:196 Abused/Neglected and Dependent Children 1-3 s.h.
 Law’s relation to children not receiving proper parental care and protection as defined by statutes and case law; history of child abuse, neglect, and dependency laws; jurisdiction of juvenile and family courts over these children; abuse, neglect, and dependency proceedings; termination of parental rights.

91:197 Art, Law, and Ethics 3 s.h.
 How law and ethics apply to individuals and institutions concerned with the visual arts; historical focus.

91:201 Antitrust Legal and Economic Analysis 3 s.h.
 Survey and economic analysis of American antitrust laws; focus on law of monopolization, cartels, mergers, predatory pricing. Same as 30:177, 47:197.

91:202 Advanced Civil Procedure 3 s.h.
 Complex civil lawsuits, especially multi-party litigation; discovery, intervention, mandatory joinder, interpleader, class actions, appellate jurisdiction, alternatives to litigation.

91:203 Administration of Estates and Trusts 1-3 s.h.
 Inception, development and administration of estates and trusts. Prerequisites: 91:272 and 91:378.

91:204 Administrative Law 3 s.h.
 Formal and informal procedures, processes, functions of state and federal administrative agencies; legislative, executive, and judicial control of their operations.

91:205 Admiralty Law 1-2 s.h.
 Admiralty jurisdiction; admiralty law of creditor’s rights; 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 trial, press and public access, right to counsel, jury trial.

91:207 Arbitration-Labor 2-3 s.h.
 Development of arbitration with emphasis on legal and institutional aspects; rationale and purpose in arbitration’s relation to grievance handling.

91:208 Antitrust Law 3 s.h.
 Law, history, economics of federal regulation of competitive behavior, primarily under the Sherman and Clayton Acts; multi-border monopolies, monopolies, mergers, resale price maintenance, customer and territorial restraints, related issues.

91:209 Agency Partnership and Limited Partnership 1-3 s.h.
 Basic principles of agency, partnership, and limited partnership; issues in the formation management, and dissolution of partnerships and similar associations.

91:210 Appellate Advocacy I 0-6 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 1 s.h.
 Continuation of 91:210; 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 Oosthoek. Competitive version of 91:211.

91:213 Jessup International Moot Court Competition 1 s.h.
 Second- and third-year students compete in intramural and national-level moot court competition in international law; intensive criticism in appellate brief writing and oral argument. Prerequisite: 91:210.

91:214 Bankruptcy Reorganizations 2-3 s.h.
 Means of reorganizing financially distressed businesses and individuals available in proceedings under Bankruptcy Code Chapters 11, 12, and 13. Prerequisite: 91:244.

91:215 Advanced Constitutional Law 3 s.h.

91:216 Business Planning 3-4 s.h.
 Problems involving control of the business transactions. The control of business planning and counseling; emphasis on problems of closely held corporations. Prerequisites: 91:244 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.

91:219 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 British Legal Systems 3 s.h.
 Offered in London Law Consortium.

91:221 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.

91:222 Comparative Corporate Law 3 s.h.
 Offered in Anchorage.

91:224 Comparative Law 2-3 s.h.
 Comparative study of the world’s main legal systems; emphasis on origins, development, characteristic features of civil law tradition, which includes most modern legal systems.

91:225 The Constitution in the Twentieth Century 3 s.h.
 Twentieth-century American constitutional history; impact of events such as the New Deal, World War II, the cold war, the civil rights movement; broad cultural understandings of the constitution’s role in American society, focus on equality, privacy, and sexuality; the Foxtwood Amendment, judicial review; the scope of federal regulatory power.

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, and holding company supervision, deposit insurance/bank failure.

91:227 Comparative Constitutional Law 2-3 s.h.
 Constitutional law decision making and substantive results under different constitutional systems of common law nations; Canada, the United Kingdom, the United States as primary examples and sources of law.

91:228 Conflict of Laws 2-3 s.h.
 Problems created when a transaction or relationship has more than one jurisdiction, emphasis on selection of appropriate jurisdiction-selecting rules, recognition of other states’ judgments; current evolution in theoretical approaches to these problems.

91:229 Commercial Payment Systems 3 s.h.
 Statutory framework of commercial payment systems; analysis of the Uniform Commercial Code, Articles 3, 4, 4A, and 5; special aspects of the Sales (2) and Investment Securities (8) Articles of the UCC; parallel developments with respect to electronic payment and fund transfer systems, including proposed Uniform New Payment code.

91:231 Comparative Free Speech Law 3 s.h.

91:232 Constitutional Law II 3-5 s.h.
 Limits on governmental power imposed by the national constitution for protection of individuals; due process and equal protection; freedom of expression and association; religious freedom and the guarantee against establishment of religion.

91:235 Consumer Credit Transactions 2-3 s.h.
 Credit reporting, credit discrimination, truth in lending, credit cards, financial privacy, interest rates, substantive regulation of consumer agreements, credit insurance, debt collection practices, and so forth.

91:237 Comparative Criminal Law Issues: United States and United Kingdom 1-3 s.h.
 Right of silence/right against self-incrimination in Britain and America; historical origins, recent developments; practical application of these rights; effects of capacity and age on the exercise of these rights, the prosecution’s obligation of disclosure and discovery, confessions, admissibility of evidence.

91:238 Criminal Trial Practice 3 s.h.

91:239 Corporate Governance and Control 1-3 s.h.
 Principal issues in creation of appropriate governance and control systems for large publicly-held corporations. Recommended: 91:241.

91:241 Corporations I 3 s.h.
 Structure, characteristics of both publicly and closely held corporations; distribution of powers among management, directors, shareholders, fiduciary duties that limit those powers.

91:242 Corporations II 2-3 s.h.
 Continuation of 91:241; emphasis on shareholders’ derivative actions, appraisal remedies, insider trading. Prerequisite: 91:241.

91:243 Federal Income Tax II 3 s.h.
 Income tax treatment of corporations and shareholders; emphasis on closely held corporations and their shareholders; for general practitioners, tax or corporate law specialists. Prerequisites: 91:241 and 91:272.

91:244 Debtor Creditor Law 3-4 s.h.
 Relationship between debtor and creditor, and rights of priority among creditors; mechanics of judgments, execution, levy, sale redemption, attachment, garnishment, and exemptions; bankruptcy, primarily Chapter 7 liquidations.

91:245 Domestic Abuse Law 3 s.h.
 Cultural context of domestic violence; treatment of domestic violence in divorce, child protection, and juvenile law.

91:246 Democracy and the Rule of Law 3 s.h.
 Theoretical and practical aspects of the relationship between democracy and the role of law, problems of designing political and legal systems to function in a democracy; readings from basic political philosophy, comparative politics, jurisprudence, comparative study of legal systems.
91:247 Anti-Discrimination Law 3 s.h.
Oppression; the anti-discrimination principle as it has emerged in cases involving discrimination on the basis of race, sex, and sexual orientation; on constitutional concepts of equality, liberty, free speech; application of those concepts to public (workplace) and private (home) spheres.

91:250 Employment Relations Law 3 s.h.
Rights of employers, employees in unionized workplaces; legal issues that arise between employers and employees in unionized settings.

91:251 Employees Retirement Income Security Act 3 s.h.
The basic act and its detailed implementing regulations; types of employers, taxation of distribution to employees, fiduciary by local government; survey.

91:257 Environmental and Toxic Product Injuries 2-3 s.h.
91:253 Employment Discrimination 2-3 s.h.
91:251 Employees Retirement Income Security

91:261 Health Law 2-3 s.h.
91:257 Environmental and Toxic Product Injuries 2-3 s.h.
91:253 Employment Discrimination 2-3 s.h.
91:247 Anti-Discrimination Law 3 s.h.

91:254 Education Law 3 s.h.
Federal and state authority to govern public and private schools; rights of parents, teachers, students; powers of legislators, judges; interaction of law and education policy. Corequisite: 91:252.

91:255 Environmental Law 3 s.h.
Role of the legal system in addressing problems of environmental disruption, with special emphasis on air, water, hazardous waste pollution.

91:256 Environmental and Toxic Product Injuries 2-3 s.h.
Special problems of causation, including overview of the science, epidemiology, and toxicology critical to making causal determinations; allowable remedies, recovery for risk exposure, medical monitoring, future development of a second disease, multiple punitive damages; procedural questions.

91:258 Arts and Entertainment Law The economics of the entertainment industry, including production, distribution, retail sectors of its five branches: music, theater, movies, television, print publishing.

91:259 Enterprise Regulation 3 s.h.
Legal, economic, business aspects of regulatory policy in the United States; focus on federal and state regulation; regulation by local government; survey.

91:261 Health Law 2-3 s.h.
Conflict between desire to provide quality health care on one hand, and ability to finance such a health care delivery system; current topics including surrogacy parenthood, euthanasia, transplantations, AIDS.

91:262 European Community Law 3 s.h.
Law and legal institutions of the supra-national entity.

91:263 Disability, Law, and Society 3 s.h.
Policy issues, sources, orientation, social and legal case law examined in legal and cultural, and historical contexts; the role of families in supporting full participation in society by children and other individuals with disabilities.

91:264 Foundations of Anglo-American Law 3 s.h.
Development of law and legal institutions; scope of criminal law, contract, and criminal justice, up to Blackstone’s day (ca. 1770) and the transit across the Atlantic. Same as 16E:114.

91:265 Evidence 3 s.h.
Rules of evidence developed in common law courts and under statutes; judicial notice; examination of witnesses; privilege and competence; relevance; hearsay; burden of proof and presumptions; rules of judge and jury.

91:266 European Union Law 3 s.h.
With the ratification of the Maastricht Treaty, a new conception of European integration exists. Full extent of this new state of integration.

91:267 Legal Externship Experience in nonprofit organizations, government agencies; unpaid; usually summer.

91:268 Family Law 3 s.h.
Creation, dissolution of marriage and parent-child relationships; lawyer’s practical approach to family law problems combined with a broader view of how the law should treat those problems as a matter of sound policy.

91:269 Feminist Legal Theory 2-3 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 131:269.

91:270 Federal Criminal Law 2-3 s.h.
Federal criminal law enforcement, the scope of federal criminal laws, and limits on federal criminal authority examined in the context specific federal crimes, such as RICO, mail fraud, drug defense enforcement, criminal civil rights statutes.

91:272 Federal Income Tax I 3-4 s.h.
Operation, policies, principles of federal income tax, including gross income, deductions, property distributions, tax accounting, income shifting.

91:273 Family Law in the World Community 3 s.h.
Family law topics examined from an international perspective, application of various international instruments, including treaties and conventions, to family law issues such as restrictive freedom, violence in the family, child custody, adoption; various countries’ legal approaches to controversial topics such as abortion, same sex marriage, surrogacy, child rearing practices. Recommended: background in family law.

91:274 Federal Courts: Constitutional Litigation and the Dual Court System 3 s.h.
Dual Court and dual system in the United States; emphasis on constitutional tort litigation (actions against governmental officials for violations of the U.S. Constitution); supremacy of federal law, preemption, federal incorporation of state law, federal and state jurisdiction over cases arising under federal law, judicial federalism (including various abstention doctrines), the 11th Amendment; constitutional tort litigation, including the scope of the plaintiff’s rights in constitutional tort actions; immunities that may be revoked by a defendant; range of legal and equitable remedies potentially available to a successful plaintiff.

91:275 Federal Courts: Structure and Jurisdiction of the Federal Judiciary 3 s.h.
History and structure of the federal court system, relationship of federal and state jurisdiction over federal matters, power of Congress to alter structure and jurisdiction of the federal courts; sources of jurisdiction for litigation of federal crimes in federal courts, special problems posed in federal court litigation; federal question, diversity, and admiralty jurisdiction; removal of cases from state to federal courts; venue and service in federal courts; choice of law in federal litigation; federal appellate jurisdiction.

91:276 International Finance 3 s.h.
Banking and securities transactions; major areas of international regulation and policy, such as capital adequacy, clearance and settlement.

91:277 Immigration Law and American Politics: Selected Topics arr.
Aspects of the contemporary political debate about immigrants and Immigration law; legal and political dimensions of public benefits and Immigration; illegal immigrants, race and politics in refugee and asylum law, and so forth.

91:278 Federal Tax Practice and Procedures 3 s.h.
Research techniques, ethics questions.

91:280 Immigration 1-3 s.h.
Role of immigration, immigrants, immigration law in American culture; history of U.S. immigration policy, with emphasis on role of race and ethnicity in immigration laws, practices; various perspectives or ideas about immigration, including attitudes toward immigrants (such as nativism during Progressive Era), role of women and family life in households, tensions between immigrant and other workers in the workplace; source, limits of federal power over immigration; immigration quotas and preferences; ground for exclusion and deportation; citizenship.

91:281 Judaic Law 3 s.h.
Manifestations of Judaic biblical heritage as icons in America’s legal culture.

91:282 International Business Transactions 2-3 s.h.
Legal problems that arise when private business transactions cross national borders; focus on structuring of private international sales, investment, licensing contracts to minimize risks of conducting business on a global scale.

91:283 Copyrights 3 s.h.
Federal law of copyrights, primarily the Copyright Act of 1976; emphasis on copyright protections affecting new technologies, such as videotape and computer hardware and software, electronic data transmission, cable television rebroadcast.

91:284 Insurance 3-4 s.h.
Legal principles and doctrines applicable to insurance marketing arrangements, determining the persons and interests protected by insurance coverages, risks transferred, when rights will be at variance with insurance policy provisions, claims process, governmental regulations of the insurance business.

91:285 International Commercial Mediation, Arbitration, and Litigation 3 s.h.
Principal modes of settling international commercial disputes; law and lawyering skills involved in counseling clients, selecting legal strategies, drafting dispute settlement clauses in contracts, negotiating clauses and disputes, and mediating, arbitrating, and limiting disputes involving parties from different countries; role playing, simulation exercises.

91:286 International Organizations 3 s.h.
International organizations and their role in multilateral dealings among states in the world community; emphasis on the United Nations and related agencies as forums for dispute resolution and the development of international legislations.

91:287 International Economic Relations 3 s.h.
Legal regulation of transnational economic relations; GATT and IMF; focus on legal problems concerning tariffs, export-import quotas, foreign exchange restrictions, international debt.

91:288 Jurisprudence 2-3 s.h.
Selected legal philosophies, with emphasis on legal positivism and natural law; nature of jurisprudence, relationship between law and morality, authority, normativity, institutional nature of law, political obligation. Same as 144:201.

91:289 Issues in Law and Mental Illness 2-3 s.h.
Legal issues involving the mentally disordered.

91:290 Juvenile Justice 1-3 s.h.
Problem of defining delinquent behavior, various causal theories, measurement and extent of delinquency; juvenile court system as a method of delinquency control; failure of the juvenile court system to achieve its aims; alternative methods of delinquency control. Pre- or corequisite: 91:125.

91:291 Environmental Law 3 s.h.
Adaptability of traditional rules of public international law for dealing with emerging global environmental problems; doctrines of customary international law, their extension to environmental issues; international law related to making of treaties conventions; effect that rules of public international law have on capacity to meet global environmental challenge.

91:292 Labor Law 3 s.h.
Federal law and its enforcement by judicial, administrative, arbitral tribunals relating to unionized employees and private firms; rights of employees to organize and engage in concerted activities and collective bargaining.

91:293 Law in American History I 3 s.h.
American legal and social problems from early New England colonization until about 1880; interdisciplinary study. Same as 16A:110.

91:294 Law in American History II 3 s.h.
American legal and social problems from about 1880 to the 1950s; interdisciplinary study. Same as 16A:111.

91:295 Law and Economics 2-3 s.h.
Law examined through analytic tools of macroeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well-being; introduction to the field. Consent of instructor required. Same as 6E:172.

91:296 Law in Radically Different Cultures arr.
Crime, constitutionalism, population planning in cultures that are radically different from one another: western (California); eastern (China); religious (Egypt and Palestine); traditional (Bottswana and Namibia). Junior, senior, or graduate standing required.

91:297 Law and Accounting 2-3 s.h.
Accounting as the language of business; familiarization with the vocabulary of accounting, knowledge and skill development in using accounting information as an analytical tool.

91:298 Law, Literature and Science 2-3 s.h.
Base concepts, skills for evaluating advantages and disadvantages of scientific evidence, advocating or attacking such evidence, and understanding the law that governs use of scientific information in courts, legislatures, regulatory agencies.

Rules governing the trial process; their role, assumptions about human behavior woven into them; empirical research on the trial process and its participants.
91:305 Law and Psychiatry 2-3 s.h.
Current medical concepts of mental disease and disorder; application of these concepts to legal problems such as commitments, criminal and civil, the right to treatment, confidentiality, “dangerousness;” the 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.

Three aspects of law’s efforts to govern military affairs: international law of war, U.S. law regulating foreign commitment of the nation’s military forces, rights of individual soldiers (particularly women, homosexuals, religious observers).

91:308 Professional Responsibility 1-3 s.h.
Public and private professional responsibility of lawyers; organization of the profession; its economics, ethics, and sociology.

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 rationale and purpose of arbitration relationship to grievance handling, contract administration, procedures and practices, current issues. Same as 62:259.

91:311 Introduction to Law of the European Economic Community 2-3 s.h.
Offered in London Law Consortium.

91:314 The Legal History of Iowa 1 s.h.
Legal history of the nation’s 29th state, from treaties and private compacts of the Iowa Territory to the Iowa Supreme Court decisions of the late 20th century; Iowa as a leader in legal movements such as civil rights, abolition of capital punishment, the rights of women; events that shaped the nation’s history—the Civil War, the Great Depression, the two World Wars—reflected in the case law, legislation, and executive acts of Iowa.

91:315 Mediation: Theory and Practice 1-3 s.h.
Essential characteristics comparison of mediation with litigation and other alternative dispute resolution processes; stages of mediation; confidentiality; enforceability of agreement; ethical problems, particularly lawyer mediator.

91:317 Legal Reasoning arr.
Recent theories, philosophical underpinnings; recent philosophical work on theory construction, knowledge, language, objectivity, morality. Same as 144:205.

91:318 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. Corequisite: 91:252.

91:319 Native American Law I 3 s.h.
Specialized body of law allocating power and authority in Indian country; sovereignty arrangements, jurisdiction, federal Indian policy, tribal self-governance. Consent of instructor required. Same as 144:211, 149:170.

91:320 Criminal Prosecution 2-3 s.h.
Recent developments in civil rights crime, environmental crime, hate crime, obstruction of justice, public corruption, stalking, violence against women.

91:321 Alternative Dispute Resolution Methods 1-3 s.h.
Theory and practice of nonadversarial dispute resolution; introductory survey.

91:323 Natural Resource Law 2-3 s.h.
Evolution of patterns of law in response to resource scarcity and social demands.

91:324 Patent Law 2-3 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.

91:329 Products Liability 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.

91:331 Philosophies of Judging 3 s.h.
The judicial duty to uphold the law and the law that judges have a duty to uphold; competing theories of judging, law, and legal interpretation, including legal formalism, legal realism, legal process, natural law adjudication.

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, conveying practices, title examinations, financing techniques.

91:334 Native American Law II 2-3 s.h.
Federal legal doctrines surrounding Indian ownership and exploitation of resources; includes Indian real property holdings, Indian land and land claims, native cultural artifacts in hunting, fishing and other food gathering rights, water rights, economic development. Consent of instructor required. Required. Same as 149:171.

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 Regulated Industries 3 s.h.
91:338 Introduction to Roman Law 2-3 s.h.
Historical overview of the Roman constitution, sources of private law; the main elements of the Roman law obligations; the second life of Roman law—its rediscovery, acceptance, influence in Europe and beyond.

91:340 Remedies 3 s.h.
Legal and equitable remedies by which the law corrects injustices and redresses legal wrongs; remedies for tortious wrongs, including damages and injunctive relief; remedies for breaches of contract, including damages, specific performance, rescission, reformation; law of restitution, with emphasis on restitutionary remedies (quasi-contract, constructive trust, equitable lien).

91:342 The Rhetorics and Ethics of Negotiations 2-4 s.h.
Nature and theory of negotiations, diverse rhetorics (including the rhetoric of legal argument) relevant to conduct of negotiations, conflict between ethics and effectiveness; readings from game theory, social psychology, anthropology, rhetoric and ethics.

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, business; politics; readings from classic authors such as Plato, Aristotle, Kant, Mill; recent contributions from several disciplines.

91:346 Sentencing and Corrections 2-3 s.h.
Substantive and procedural law of the criminal justice system; the guilty verdict sentencing, appeal, incarceration.

91:347 Secured Transactions 3 s.h.
Statutory framework for creation of security interest in personal property and fixtures; history, current uses, proposed amendments to Article 9 of the Uniform Commercial Code.

91:348 Securities Regulations 3 s.h.
Federal and state regulation of issuance of securities; the requirement that information be made available to the trading markets; tender offers and proxy fights for corporate control. Prerequisite: 91:241.

91:350 Taxation of International Transactions 3 s.h.
Federal and state taxation of income of individuals; application of substantial and transfer pricing formulas; definition of in-kind and services; income-splitting provisions, definition of income.

91:351 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.
Aspects of law regarding local government; federalism; other governmental units; local governance; federal and state government intervention.

91:355 State and Local Government 1-3 s.h.
Aspects of law regarding local government; federalism; other governmental units; local governance; federal and state government intervention.

91:356 Taxation of Intangibles Transfers 1-3 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, provision 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.

91:369 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 technique and participate in a full trial. Prerequisite: 91:265.

91:371 Trial Advocacy Board 1-2 s.h.
Administration of Trial Advocacy Program and Stephen H. Lynch Competition; research and writing in connection with trial problems and readings used in program; critique of performances of trial programs. 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; finalist 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 2 s.h.
Rigorous mock trial experience; discussion of substantive law, procedural rules, rhetorical techniques, strategies, ethics; focus on role of the expert witness in civil litigation. Prerequisites: 91:265 and 91:370.

91:378 Trusts and Estates 1-4 s.h.
Transmital of wealth within the family.

91:381 Workers Compensation 2-3 s.h.
Principles of workers’ compensation law nationwide, with emphasis on Iowa statutory and case law; policy underpinnings, coverage formulas, benefit calculation, third-party suits, administrative procedure, medical issues.

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 91:210231.

91:406 Clinical Law Program-Internship arr.
Students work directly with faculty members on cases and in-house programs; interns participate fully in interviewing, fact investigation, negotiation, courtroom proceedings.

Students represent clients through legal assistance offices in eastern Iowa, under supervision of faculty members and staff attorneys.

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 Intra-scholar Client Counseling Competition under supervision of faculty advisor.

91:413 Client Counseling Competition 1 s.h.

Student-operated scholarly publication that examines subjects of current importance to businesses and the bar; staff members edit articles and write commentaries on suitable topics.

91:416 Student Journal Editor-Journal of Corporate Law arr.

91:420 Transnational Law and Contemporary Problems arr.

91:421 Student Journal Editor–TLCP Journal arr.

91:425 Journal of Gender, Race, and Justice arr.
Of office duties; for second or third year law students. Writing of two journal pieces throughout the year, including a recent development and a note or a comment, and performance of office duties; for second or third year law students.
91:426 Student Journal Editor—Gender, Race, and Justice

Experience as editorial staff member, managing student writing program, overseeing business operations and production, choosing symposium topic and participants, selecting and editing all publications pieces; for law students with writing and editing experience.

91:440 Maternal and Child Health Legal and Public Policy Issues

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 attorney generals’ 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 involve 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; year-long seminar.

91:602 Behavior of the Tort Litigation System

Death penalty in America.

91:604 Advanced Topics in Civil Rights History

Focus on student research. Prerequisite: 91:232 or consent of instructor.

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 prowess—their importance to professional effectiveness; ethics rules and practitioners’ perceptions of ethical realities; professional styles, self-understanding of small-town and big-city lawyers; the influex of women and its effect on adversarialism versus the “feminine ethic of care.”

91:609 Children in Need of Assistance

In-depth look at the law dealing with abused or neglected children, or “children in need of assistance” in Iowa; two-semester seminar.

91:611 Citizen Enforcement of Environmental Laws

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.

91:614 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 Does Law Have Justifiable Foundations? 

Exploration of recent post-modern and analytic arguments that knowledge, morality, politics and law have no foundations and cannot lay claim to the hermeneutic “truth”; virtues and vices of foundational and coherent theories, with particular emphasis on whether coherence is a moral virtue in a legal system or legal theory; relations between a legal system’s acting consistently and being coherent; whether coherence is desirable and if it makes a legal system more legitimate.

91:620 Law and Technology Seminar

Topics will vary.

91:623 Critical Race Theory

Social, political, and legal writings on aspects of race in development and implementation; race as pervasive fabric of our society, how the law might be used to address social conditions involving commercial, constitutional, and criminal law.

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 hopelessness, civil legal assistance, income support; readings of cases, statutes, secondary materials.

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, doctoral issues prevalent in a university setting; focus on real or hypothetical problems considered in light of background reading rather than doctrinal analysis.

91:633 Selected Problems in Indian Law

91:634 International Human Rights

91:635 Indigenous Peoples in the International Legal System

Survey of historical and contemporary development of international law, as they relate to Native Americans and indigenous peoples throughout the world. Same as 149:176.

91:637 Insurance, the Industry and Public Interest

Public concerns such as AIDS and the insurance industry, delivery of health care, motor vehicle accidents, restoring the nation’s environment; public interests that influence how insurance is used to provide coverage for a variety of risks that affect Americans’ lives.

91:638 International Commercial Arbitration

Choice of arbitration, limits on arbitrability of disputes, choice of applicable law, arbitration process, enforceability of awards through national legal systems.

91:639 International Litigation Seminar

Problems in litigation revolving U.S. plaintiffs who sue foreign defendants or foreign plaintiffs who sue U.S. defendants in U.S. courts.

91:640 First Amendment Seminar

Structural elements of First Amendment doctrine; relationship between communication and protected “speech”; meaning of speech; Freedom of the Press; money and speech (especially in structural elements of First Amendment doctrine); relationship between campaign finance reform; organizational, representative, and commercial speech; notions of “harms”; implications of new technologies of production, representation (median), and distribution.

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 subsidies, academic freedom.

91:645 Advanced Problems in International Law and Policy

Current problems of international law and affairs; individual conference and group study basis; emphasis on policy-oriented research and writing.

91:655 Law and Society England 1500-1800

Research paper based on use of primary materials; wide range of possible topics. Prerequisite: 91:260.

91:656 Labor-Protective Legislation for Low-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

1-3 s.h.

Fundamental societal issues and ethical questions examined through discussion of literary works, including novels and plays by writers such as Camus, Coetzee, Dostoevsky, Durrenmatt, Faulkner, Ibsen, Kafka, Melville, Thucydides. Same as 8:259.

91:660 Medical Seminar for Law Students

Cosponsored by College of Medicine. Prerequisite: 91:261.

91:661 Legal Issues: Intercollegiate Athletics

Legal issues affecting college and university athletics and athletes; includes drug testing, recruitment, gender equity (Title IX), NCAA regulations, endorsement contracts, coaching contracts, trademark licensing, and broadcasting rights.

91:662 The Rhetorics and Philosophies of Law

Writing projects related to topics covered in 91:358, natural rights, legal formalism, legal realism, legal process school, law and economics, legal positivist/analytic tradition, rhetoric and the construction of social reality, literary theory and the law, critical legal theory. Prerequisite: 91:358 or consent of instructor.

91:663 Political Theory and the Obligation to Obey Law

Examines alleged grounds of political obligations including consent, tacit consent, argument from fair play, duty to uphold just institutions, legitimate authority, fraternity, utility, gratitude; studies the critical legal scholarship claim that law is indeterminate; readings from Plato, Locke, Hume, I.L.A. Hart, Rawls, Waldron and others.

91:665 Disability Law Seminar

Disability law and policies in relation to mental retardation, mental health, Consent.

91:667 Modern Constitutional History

Civil rights and civil liberties issues in American legal and cultural history from World War II to 1980. Pre- or corequisite: 91:322 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 Principate, the Dominate.

91:672 Proxy Contests Seminar

Fundamental issues of state and federal law relating to proxy contests for corporate control; shareholder proposals; proxy solicitations, 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 then code drafters) hold about how people give and receive information, errors in assumption by rule makers and their effect(s) on ensuing rules. Pre- or corequisite: 91:205.

91:675 Selected Issues in Family Law

A particular issue or set of related issues in family law; relevant cases, statutes, scholarship.


Litigation process from initial incidence of actionable events through appeal process; research on what works in such areas as case selection and prediction, negotiation, jury selection, persuasion.

91:682 Seminar on Transnational Corruption

Public officials, worldwide, are required to enrich themselves, their families, or their friends; transnational legal strategies addressing corruption, including the U.S. Foreign Corrupt Practices Act, diverse cultural attitudes toward corruption, desirability of international standards for controlling corruption, means of implementing international standards.

91:683 Race, Law and Social Theory Seminar

Reform underwary in socialist and formerly socialist countries, with emphasis on Vietnam and China; constitutional revision and the role of constitutionalism; new role of contracts and contract law in marketing socialist economies; labor law and conflict between protecting workers and ensuring low wage rates for foreign investors; role and powers of newly resurgent legislative authorities; regulation of growing trade and investment sector; conflicts in legal theory and the rationales for law in transitional socialist states; the new role of nongovernmental organizations and the regulation of emerging civil society in party controlled states.

91:690 Women and the Criminal Justice System arr.

Battered women and their right to self defense; development of evidentiary law on battered women syndrome; labor law and conflict between protecting workers and ensuring low wage rates for foreign investors; role and powers of newly resurgent legislative authorities; regulation of growing trade and investment sector; conflicts in legal theory and the rationales for law in transitional socialist states; the new role of nongovernmental organizations and the regulation of emerging civil society in party controlled states.

91:690 Women and the Criminal Justice System

Battered women and their right to self defense; development of evidentiary law on battered women syndrome; labor law and conflict between protecting workers and ensuring low wage rates for foreign investors; role and powers of newly resurgent legislative authorities; regulation of growing trade and investment sector; conflicts in legal theory and the rationales for law in transitional socialist states; the new role of nongovernmental organizations and the regulation of emerging civil society in party controlled states.
College of Medicine

Anatomy .......................... 422
Anesthesiology ........................ 423
Division of Associated Medical
  Sciences .......................... 423
  Clinical Laboratory Sciences  .... 426
  Nuclear Medicine Technology  .... 426
  Physical Therapy .................. 427
  Physician Assistant Program .... 430
Biochemistry .......................... 431
Dermatology .......................... 434
Dietetic Internship .................... 434
Family Practice ......................... 434
Genetics ............................. 435
Hospital and Health
  Administration ....................... 435
  Human Nutrition ..................... 438
  Immunology .......................... 438
  Internal Medicine .................... 438
Medical Scientist Training
  Program ............................ 440
Microbiology .......................... 441
Molecular Biology ...................... 443
Neurology ............................. 444
Neuroscience .......................... 444
Obstetrics and Gynecology .......... 445
Ophthalmology .......................... 446
Orthopedic Surgery .................... 446
Otolaryngology -- Head and Neck
  Surgery ............................. 447
Pathology ............................. 447
Pediatrics ............................. 449
Pharmacology .......................... 450
Physiology and Biophysics .......... 451
Preventive Medicine and
  Environmental Health ............... 452
Psychiatry ............................ 458
Radiation Biology ...................... 458
Radiology ............................. 459
Surgery ............................... 460
Urology ............................... 461

Dean: Robert P. Kelch
Executive associate dean: Richard P. Nelson
Associate dean for student affairs and curriculum: Peter Densen
Associate dean for finance and administration: Dennis M. Domsic
Associate dean for faculty affairs: Susan R. Johnson
Associate dean for Veterans Affairs: John E. Kasik
Associate dean for clinical affairs: Michael G. Kienzl
Associate dean for research development and graduate programs: Allyn L. Mark
Special assistant to the dean—development: William L. Lillibridge
Assistant to the dean for facilities planning and management: Richard K. Schmidt
Assistant to the dean: 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 practitioners update their knowledge and skills through refresher courses, clinics, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and provides a statewide educational health care resource.

Beyond its academic responsibilities as the only college in Iowa that offers a curriculum leading to the M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health care services. Its faculty members advise and serve on state and regional health planning councils, health boards, and various health agencies; some faculty also take part in the University’s Center for Health Services Research.

The College of Medicine is responsible for the associated medical sciences programs of education for physician assistants, clinical laboratory scientists (with tracks in cytogenetics and biotechnology), physical therapists, and nuclear medicine technologists.

Medical and associated medical science students have a number of opportunities to gain firsthand experience in physicians’ offices and community hospitals. For medical graduates, the college offers seven University of Iowa-affiliated family practice 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.

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, the physician assistant program, 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 with the associate dean for student affairs and curriculum of the College of Medicine.

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 and is subject to continual evaluation and renewal To reflect the changing needs of physicians and society, the college undertook a major revision of its medical curriculum in fall 1995. The revised curriculum, which is expected to be fully in place by summer 1997, is as follows.

Basic Medical Sciences (First Three Semesters)

The first three semesters present a core of sciences basic to the study of medicine and introduce the student to the foundations of clinical practice.

first Semester

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 Medical Gross Anatomy includes complete dissection of the human body, stressing the relationship to the living system. Clinically relevant areas of anatomical radiology, surface anatomy, human embryology, and clinical correlations are included.

60:116 Cell Biology presents the structure and function of the cell and its organelles at the molecular level.

70:110 Medical Genetics is integrated with ongoing classes in anatomy, biochemistry, and cell biology. It provides an overview of clinical and medical genetics, with particular emphasis on recent changes that affect clinical practice with respect to common diseases that have a genetic component.

50:162 Foundations of Clinical Practice I is the first semester of a four-semester sequence that introduces clinical skills essential for a practicing primary care physician. There are five major goals for students over the four semester course, as follows.

Begin to develop knowledge, attitudes, and skills leading to maturation into a competent and confident clinician

Develop greater knowledge and awareness of the ethical and social context in which medicine is practiced

Develop the knowledge, attitudes, and skills necessary to continue the lifelong process of learning the practice of medicine

Develop the knowledge, attitudes, and skills necessary to apply scientific advances to the practice of medicine

Develop the knowledge, attitudes, and skills to apply principles of health promotion and disease prevention to the practice of medicine

Through large group lectures, small case-based learning groups, and small-group skill building sessions, students focus on communication in the doctor-patient relationship, accessing and managing medical information, and applying basic biostatistics and principles of medical ethics.

Second Semester

60:234 Medical Neuroscience is an interdepartmental course for medical students, physical therapy students, and graduate students in the basic medical or related sciences. It emphasizes the interdisciplinary and integrated study of the human nervous system and consists of lectures, clinical presentations, laboratories, and small group discussion sessions. The course faculty is drawn from basic science and clinical departments.

148:251 Principles of Medical Immunology is offered by the interdisciplinary Immunology Program. The goals of the course are to teach basic components and mechanisms of the immune response as well as medical principles of normal and abnormal immunity.

50:240 Development, Structure, and Function of Human Organ Systems presents the physiology and histology of the normal human in a coordinated and integrated organ systems approach.

50:163 Foundations of Clinical Practice II is the second semester of a sequential, four-semester course that introduces clinical skills necessary for becoming a practicing primary care physician (see 50:162 for overall course goals). In this semester, students continue to work toward course goals through small case-based learning groups, large-group lectures, and small-group skill acquisition sessions. Principles of doctor-patient communication are reinforced and performance
of the components of the general physical examination are taught and practiced. Medical ethics, preventive medicine and health promotion, biostatistics, medical informatics, and the social context of medicine are emphasized.

**Third Semester**

71:105 Medical Pharmacology 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.

61:103 Principles of Infectious Diseases presents an organ-based approach to the microbiology of infectious diseases, covering infectious agents at both the organism and molecular levels. The molecular aspects of pathogenesis are presented as the basis for present and future preventive and therapeutic measures. The laboratory is an important educational instrument, with hands-on experiments ranging from principles of aseptic technique to the most modern molecular aspects of diagnostic microbiology.

69:204 General and Systemic Pathology starts with general principles of disease: cell injury, inflammation, immune mechanisms, neoplasia, and developmental disorders, followed by etiology, pathogenesis, epidemiology, and major clinical and morphologic manifestations of disease by organ systems.

50:164 Foundations of Clinical Practice 111 is the third semester of a sequential, four-semester course that introduces clinical skills necessary for becoming a practicing primary care physician (see 50:162 for overall course goals). This semester continues the knowledge, attitude, and skill acquisition begun in the preceding two semesters. Students continue to learn through small case-based learning groups as well as lecture and clinical skill-building small groups. Content areas include human sexuality, biomedical ethics, and problem-specific medical history and physical exams. Students begin to apply clinical history taking and physical exam skills learned in preceding semesters by taking complete histories and performing physical exams on patients under direct faculty supervision.

Several elective courses are available to students during the third semester. These normally 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. Course offerings vary from year to year, but typical examples are History of Medicine in Western Society, International Health, Medicine in the Humanities, and Spanish for Health Professionals.

**Introduction to the Clinical Disciplines (Fourth Semester)**

50:165 Foundations of Clinical Practice IV (Introduction to Clinical Disciplines) is the final course in the foundation series. The fourth semester is devoted primarily to this major interdisciplinary course, which includes participation by a large proportion of the faculty and is vital in providing students with the tools for a lifetime of patient care.

The mornings are devoted to an intensive review of clinical medicine on an organ system basis, presented by teams of clinicians. Throughout 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 reinforced in this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level of skill he or she has achieved. If further work is needed, guidance and assistance are provided.

50:169 Clinical Therapeutics is a series of didactic sessions that parallels material presented in Foundations of Clinical Practice IV (Introduction to Clinical Disciplines) and emphasizes selection of drugs, evaluation of clinical response, and prediction of increased likelihood of drug toxicity in a case-based format.

Beginning with the class that enters the College of Medicine in fall 1997, all M.D. students will be required to pass Step 1 of the United States Medical Licensing Examination before they may be promoted to the third year of the curriculum.

**Clinical Years (Third and Fourth)**

The clinical courses take place during the last two years of the medical curriculum. In order to qualify for graduation with the M.D. degree, students must complete satisfactorily a total of 80 weeks of courses during the two clinical years: 68 weeks of required courses and 12 weeks of electives. Course distribution is 48 weeks in the first clinical year and 32 weeks in the second. The required courses are as follows.

Six generalist core clerkships: ambulatory medicine and family practice preceptorship, internal medicine, pediatrics, obstetrics and gynecology, surgery, and community-based primary care. Each course includes a mix of inpatient and outpatient activities, introduces the student to a specific discipline (or to the practice of medicine in the community), and presents the opportunity to develop and practice clinical skills.

Neuropsychiatry selective: neurology, psychiatry, ophthalmology, and otolaryngology.

Subspecialty selective: anesthesiology, dermatology, orthopedics, radiology, urology, interdisciplinary (laboratory medicine, electrocardiography, and beginning academic year 1997-98, death and dying and health law).

Subinternship in an approved discipline: the student assumes responsibility for managing patients on inpatient units in a variety of medical disciplines, supervised by a senior resident and a faculty physician.

Emergency room or intensive care rotation

Three electives: electives chosen from courses listed in the course book distributed by the College of Medicine.

**First Clinical Year Course Requirements**

All medical students must complete satisfactorily 48 weeks of courses, including six generalist core clerkships (for six weeks each) and either one selective (for 12 weeks) or 12 weeks of courses chosen from subinternship, emergency room, intensive care, or electives.

**Second Clinical Year Course Requirements**

All medical students must complete satisfactorily 32 weeks of courses chosen from those not completed in the first clinical year, including subinternship, emergency room or intensive care, selective(s), and electives.

Although the primary venues for clinical training of medical students are The University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center, the family practice preceptorship and the community-based primary care clerkship are off-campus rotations. Some other courses may be assigned to off-campus sites, as well.

**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 Primary Care Loan (PCL), the Federal Direct Subsidized Stafford/Ford Student Loan, the Federal Direct Unsubsidized Stafford/Ford Student Loan, and the Perkins Loan program. There are also a number of private loan programs available to medical students.

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 Sledd 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 is the College of Medicine’s affirmative action effort to identify, recruit, retain, and graduate students from groups that are underrepresented in American medicine: African-Americans, Mexican-Americans, American Indians, and Mainland Puerto Ricans. The program provides academic support and financial assistance throughout the four years of medical school.

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 admission 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 a grade-point average of at least 2.50 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 an integral part of the admission process. Candidates invited for an interview are contacted by the Admissions Committee.

Applicants accepted on or prior to February 15 must submit an advance payment of $50 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.

All newly registered College of Medicine students are required to maintain health insurance (or an equivalent care plan) sufficient to satisfy minimum standards of coverage, in order to attend classes. Insurance coverage must be maintained continuously throughout each year of attendance at The University of Iowa.

Student Promotions, Policies, 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, 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.

**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.

**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.

**Interdisciplinary Programs and Centers**

The college’s interdisciplinary programs and centers draw strength from college faculty members and the facilities available to them, without regard to departmental units or to the distinction between graduate and postgraduate training. Further information is available from the associate dean for research and graduate programs.

The following centers are subdivisions of the College of Medicine.

**Center for Health Services Research**

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 variety 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 35 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 integrative and interdisciplinary research to advance knowledge about 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: Program—Project Grant on Integrative Functions in Neurovascular Control, Program—Project Grant on 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 National Institutes of Health 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, the Medical Education Building, the Medical Laboratories, and in classrooms and conference rooms of The University of Iowa Hospitals and Clinics. The Hardin Library for the Health Sciences is a vital resource centrally located on the health sciences campus. Students acquire clinical experience in the 845-bed University of Iowa Hospitals and Clinics complex, in the adjacent 161-bed Veterans Affairs Medical Center, and in affiliated hospitals and ambulatory care centers throughout the state.
Faculty members of the Colleges of Medicine and Dentistry make up the 634-member clinical staff at The University of Iowa Hospitals and Clinics, whose 16 clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 481 resident physicians and dentists who make up the house staff of the hospitals and clinics, where facilities are provided for teaching all major medical specialties, for residencies in all such specialties, and for fellowships in a number of subspecialties.

The University of Iowa Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about The University of Iowa Hospitals and Clinics, Veterans Affairs Medical Center, and related academic and health service units, see “The University of Iowa Health Center” in the Special Resources at Iowa section of the Catalog.

Research Facilities

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.

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 Electron 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 either hands-on or through a staff operator. The Cyto genetics 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 in 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.

Nondepartmental Courses

50:000 Medical Student Research Fellowships 0 s.h.

50:1 Elective Fourth Year 0 s.h.

50:2 Medicine Clinical Third Year 0 s.h.

50:4 Medicine in the Humanities 2 s.h.

50:6 Interpersonal Skills for the Medical Professional 1 s.h.

50:105 Law and Medicine for Physician Assistant Students 1 s.h.

50:150 Molecular Modeling Techniques I 2 s.h.

50:151 Molecular Modeling Techniques II 2 s.h.

50:152 Introduction to 3-D Modeling and Animation 3 s.h.


50:162 Foundations of Clinical Practice I 5 s.h.

50:163 Foundations of Clinical Practice II 5 s.h.

50:164 Foundations of Clinical Practice III 7 s.h.

50:165 Foundations of Clinical Practice IV (Introduction to Clinical Disciplines) 15 s.h.
50:167 Readings in Biomedical Ethics arr.
Intended for medical, nursing, law, and graduate students.
Consent of instructor required. Same as 32:268.

50:168 Teaching of Physical Exam Skills 1-2 s.h.
Components of complete physical exam and educational techniques for teaching such skills; teaching of physical exam components to freshmen. Open only to senior medical students.

50:169 Clinical Therapeutics 2 s.h.
Didactic sessions paralleling material in 50:175; emphasis on selection of drugs; evaluation of clinical response, prediction of increased likelihood of drug toxicity; case-based format.

50:170 Women, Gender, and Medicine: Historical Perspective 4 s.h.
Women in medicine from two historical perspectives; women as patients, healers. Open only to senior medical students.

50:175 Foundations of Clinical Practice IV for Physician Assistant Students 15 s.h.
Basic diagnostic considerations in each of medicine’s clinical disciplines, as required of primary care providers.

50:179 Clinical Therapeutics for Physician Assistant Students 2 s.h.
Didactic sessions paralleling material in 50:175; emphasis on selection of drugs, evaluation of clinical response, prediction of increased likelihood of drug toxicity; case-based format.

50:180 Community Based Primary Care 6 s.h.
Didactic sessions paralleling material in 50:175; emphasis on selection of drugs, evaluation of clinical response, prediction of increased likelihood of drug toxicity; case-based format.

50:181 Interdisciplinary Medicine 2 s.h.

50:201 Diets Seminar 1 s.h.
Current research findings in normal 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 Diets 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 Clinical Diets 3 s.h.
Nutritional aspects of health and disease, with emphasis on therapeutic use of food; student participation.

50:204 Clinical Diets 3-4 s.h.
Application of 50:203 through clinical case presentations.

50:205 Projects in Dietetics arr.
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 (GRE) 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.

50:206 Projects in Dietetics arr.
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 (GRE) 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.

50:207 Dietetic Research 1 s.h.
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 1 s.h.
Applications and discussion of 50:205 through selection, execution of independent projects and/or applied clinical dietetics research.

50:209 Hospital Dietary Administration 1 s.h.
Administration of clinical nutrition to patients and staff in acute care hospitals; teaching of clinical nutrition concepts; and management of clinical nutrition departments.

50:211 MSTP Research arr.
Open only to MSTP students.

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 4 s.h.

50:240 Development, Structure, and Function of Human Organs 9 s.h.
Macroscopic structure and function of major and specialized human organ systems; approach integrating anatomy and physiology. Open only to medical students.

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, and ambulatory care clinics.

50:270 Responsible Conduct in Research 1 s.h.
Ethical issues; misconduct and fraud; proper handling of data; responsible authorship; conflict of interest; research on animals and human subjects. Consent of College of Medicine required.

50:995 Individual Projects: History of Medicine arr.
Open only to senior medical students.

ANATOMY
Head: Mary J.C. Hendrix
Associate professors: Martin D. Cassell, 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 relationship.

Preclinical Study
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 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 five major subject areas (cell biology, neuroscience, gross human anatomy, histology, and 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 (GRE) 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 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; systematic approach to all body areas, with emphasis on clinical relevance; open only to pharmacy, pre-nursing, associate medical sciences majors.
Prerequisites: 2:10 and 2:11, or equivalents.

60:3 Human Biology 3 s.h.
Anatomy of the human body at gross and microscopic levels; physiology and basic pathology of cells, tissues, organs.
60:10 Demonstration Laboratory in Human Anatomy 1 s.h.
Gross, microscopic human anatomy. Open only to pre-nursing and associated medical sciences majors. Corequisite: 60:1.
60:101 Human Gross Anatomy for Dental Students 6 s.h.
Regional dissection, lectures, demonstrations, with emphasis on head and neck, neuroanatomy. Offered spring semesters. Consent of instructor required. Same as 60:1.
60:103 Medical Gross Human Anatomy 5 s.h.
Regional dissection, lectures, demonstrations, tutorials; clinically relevant areas of anatomical radiology, surface anatomy or clinical correlations. 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.
60:111 Gross Human Anatomy for Physician Assistant Students 6 s.h.
Regional dissection, lectures, demonstrations, tutorials; neuroanatomy, radiology. Offered summer sessions. Enrollment in Physician Assistant Program or Graduate College or consent of instructor required.
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, related structures. Open only to dental students and anatomy graduate students. Offered fall semesters.
60:116 Medical Cell Biology 2 s.h.
Cell structure, function and function of organelles, interactions of cells with each other and with environment. Open only to medical students. Offered first ten weeks of fall semester.
60:122 Independent Study in Anatomy arr.
Projects arranged with department faculty members. Consent of instructor required.
60:156 Scanning Electron Microscopy and X-Ray Microanalysis 3 s.h.
Same as 2:156, 12:156, 52:156.
60:202 Anatomy Research arr.
Projects arranged with faculty member engaged in research. Open only to graduate students in anatomy.
60:203 Gross Human Anatomy for Graduate Students 6 s.h.
Regional dissection, lectures, demonstrations, discussions, seminars; clinically relevant areas of anatomical radiology, surface anatomy with clinical correlations. Graduate standing in anatomy or consent of instructor required. Offered fall semesters.
60:205 General Anatomy for Graduate Students 4-5 s.h.
Cells, tissues, organs at light and electron microscopic levels. Graduate standing in anatomy or 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.
60:218 Electron Microscopy Techniques 3 s.h.
Same as 2:218, 61:218.
Same as 2:220, 61:220.
60:224 Graduate Student Seminar 0-1 s.h.
Open only to anatomy graduate students who present seminars on current research, literature.
60:231 Advanced Human 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. Pre-requisites: 60:103 or 60:203, and consent of instructor.
60:232 Advanced Human Anatomy II 4 s.h.
Regions, systems relevant to specialty interests of student. Open only to senior medical students and graduate students. Consent of supervising faculty member required.
60:233 Advanced Histology 2 s.h.
Cells, tissues, organs, with emphasis on clinical relevance. Open only to sophomore, junior, and senior medical and dental students, and graduate students. Consent of instructor required.
60:234 Medical Neuroscience 4 s.h.
Basic principles of neurophysiology, neuroanatomy, emphasis on human central nervous system; laboratory emphasis on anatomical study of spinal cord, brain. Offered spring semesters. Consent of course director required. Same as 50:234, 72:234, 132:234.
60:236 Sectional Human Anatomy 4 s.h.
60:245 Developmental Neuroscience 2 s.h.
Same as 2:245, 132:245.
60:265 Neuroscience Seminar 3 s.h.
60:270 Human Anatomy, Physiology, Pathophysiology, and Assessment for Advanced Practice Nursing 3 s.h.
Interrelationships between anatomical structure and physiological function in health and disease; clinical assessment of functional integrity of organ systems; implications of pathological anatomy for anesthesia. Admission to the anesthesia nursing graduate program or consent of instructor required. Same as 96:270.
60:272 Seminar in Cellular and Molecular Biology 1 s.h.
60:998 Special Study on Campus arr.
Special study in anatomy; interdisciplinary course approach. Open only to fourth year medical students.

**ANESTHESIOLOGY**

Head: John H. Tinker


Professor emeritus: Shiro Shimomoto


Associate professor emeritus: James G. Carter

Assistant professors: Winston Barcellos, Timothy Barrington, Laurilyn Helmers, Paul Leonard, Burdett Porter, Stephen Stefani, Kevin Watkins, Tyrome Whitter

The department introduces the second-year medical student to anesthesia as a specialty; helps to develop in the third-year student some concepts and technical skills related to resuscitation, airway management, and the care of the comatose patient; and offers the fourth-year student intensive study in any and all phases of the specialty. Diverse clinical experiences, seminars and teaching conferences, and ongoing research activities help the postgraduate student or resident develop the knowledge and skills required of a specialist in anesthesia.

**Courses**

116:6 Clinical Anesthesia 2 s.h.
Clinical patient care in operating, recovery rooms; seminars, clinical case conferences, and discussion sessions.

116:10 Clinical Anesthesia Senior arr.
Instruction and practical experience in various forms of anesthesia for surgical procedures; basic techniques of general, spinal, epidural, peripheral nerve-block anesthesia; endotracheal intubation, other airway maintenance skills; management of comatose patient, cardiopulmonary resuscitation; pharmacology of general and regional anesthesia; their impact on respiratory and cardiovascular function; methods of treatment; clinical anesthesia seminars, morbidity and mortality conference.

116:11 Intensive Care arr.

116:271 Application of Chemical and Physicochemical Principles in Anesthesia Nursing Practice 3 s.h.
Physicochemical principles; behavior of anesthetic drugs; techniques for measuring oxygen, pulmonary function, anesthetic gases in air, blood; risks and prevention of injury in operating room environment. Admission to anesthesia nursing graduate program or consent of instructor required. Same as 96:271.

116:272 Pharmacology and Anesthesia Practice I 3 s.h.
Pharmacokinetics, pharmacodynamics of anesthetic agents and adjunct drugs used in anesthesia practice. Consent of instructor required. Same as 96:272.

116:273 Pharmacology and Anesthesia Practice II 3 s.h.

116:274 Principles of Anesthesia Nursing Practice I 3 s.h.
Basic anesthetic principles; beginning clinical practicum to anesthetic equipment and operating room environment; information on administration of sale anesthesia. Consent of instructor required. Same as 96:274.

116:275 Principles of Anesthesia Nursing Practice II 3 s.h.

116:276 Principles of Anesthesia Nursing Practice III 4 s.h.
Continuation of 116:275; anatomy, physiology, pathophysiology of pediatric, obstetric, geriatric patients; integration into nurse anesthesia care. Consent of instructor required. Same as 96:276.

116:277 Principles of Anesthesia Nursing Practice IV 4 s.h.
Continuation of 116:276; complex technical instruction and experience in neurosurgical, thoracic, cardiovascular, obstetric, geriatric, orthopedic, emergency and outpatient surgery, radiologic procedures, administration and management of regional anesthetic agents. Consent of instructor required. Same as 96:277.

116:278 Professional Aspects of Anesthesia Nursing Practice 3 s.h.
Analysis of contemporary anesthesia practice; historical development of anesthesia nursing as specialty; legal aspects; current issues. Consent of instructor required. Same as 96:278.

**DIVISION OF ASSOCIATED MEDICAL SCIENCES**

Head: Denis Oliver

The Division of Associated Medical Sciences provides coordination of academic programs for training clinical laboratory scientists, nuclear medicine technologists, physical therapists, and physician assistants. Students usually enroll initially in the College of Liberal Arts and are assigned a faculty adviser from the division.

In addition to the certificate of completion, the Clinical Laboratory Sciences and Nuclear Medicine Technology Programs offer the B.S. degree in medicine to qualified students. Two of the division’s programs offer graduate degrees, which are awarded by the Graduate College. The M.P.A.S. degree is awarded upon completion of the Physician Assistant Program, and the Physical Therapy Program offers three degrees: options to qualified students: M. P. T., M.A., or Ph.D.

**Division of Associated Medical Sciences ● Medicine**

423
Although each program in the division has its own admission requirements, they all require a similar foundation in the biological, chemical, and mathematical sciences. Physics, physiology, computer science, biochemistry, general statistics, and psychology are required by some programs and are highly recommended for others. Students should plan their study programs carefully 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 general academic policies described here govern all four of the division’s programs. Following the text on policies are descriptions of each of the division’s programs, summaries of each profession, curriculum outlines, prerequisite and admission requirements, and lists and descriptions of courses. See “Clinical Laboratory Sciences,” “Nuclear Medicine Technology,” “Physical Therapy,” and “Physician Assistant Program.”

**General Academic Policies**

**Advising**
When students declare their intended major to be one of the programs in the Division of Associated Medical Sciences, they are assigned to that program for academic advising.

**Admission**
Students are admitted to the College of Medicine at the time of formal admission to one of its programs. Admission policies and procedures vary from program to program. 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: clinical laboratory sciences, at least 2.50; nuclear medicine technology, at least 2.50; and physician assistant, at least 3.00.

Admission committees give special attention to grades in the sciences, particularly those prerequisite science courses required by the individual programs.

**Student Health**
Beginning fall semester 1996, all health professions students will be required to provide proof of health insurance coverage when they register at The University of Iowa. For more information about this requirement, students should consult the directors of the individual programs. In addition, students admitted to division programs must show proof that they have had a recent physical examination, including routine laboratory procedures and immunizations. For more information, consult Student Health Service.

**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 minimum grade-point average of at least 2.00 in all college work attempted, all work undertaken at The University of Iowa, and all graded work attempted after admission to the 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 Program 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 clinical laboratory science 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.

**Application for Degree**
Students who want to be considered for graduation must file an application for degree with the Office of the Registrar before the deadline for the session in which the degree is to be conferred. Students who want to have a minor listed on their transcript must indicate this on the degree application form so that completion of the requirements for the minor can be verified.
Duplication
Duplication occurs when students take the same course more than once or when they take a course that duplicates the content of a 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 10 percent of the division’s graduating students may be recognized for their scholastic achievement upon recommendation by the program and with the dean’s approval. Minimum criteria have been established for the following designations: distinction, high distinction, and highest distinction.

Registration and Grading
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.

Incomplete
A grade of I (incomplete) maybe 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, Probation, Dismissal
Students are expected to maintain satisfactory academic and professional standards and to demonstrate reasonable progress toward the degree and certificate. Students who fail to maintain satisfactory academic progress or professional standards of behavior as determined by the program may be placed on probation or dismissed from the program. 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 reappointment.

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 penalties as the offense may warrant: 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.

**CLINICAL LABORATORY SCIENCES**

Director: Marian Schwabbauer  
Medical director: Robert D. Tucker  
Associate professor: Robert D. Tucker  
Lecturers: Ruthanne Hyduke, Marian Schwabbauer  
Adjunct lecturer: John Abadi  
Associate: James O’Conor  
Adjunct associate: Beverly Pennell  
Assistant-in-teaching: Kathleen Kelly  

Undergraduate degree: B.S. in Clinical Laboratory Sciences

Clinical laboratory scientists/medical technologists 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. Clinical laboratory scientists/medical technologists are highly skilled health team members who use a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

The Clinical Laboratory Sciences Program is 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 clinical laboratory scientist/medical technologist certification examinations. The program is accredited by the Council on Medical Education of the American Medical Association and by the National Accrediting Agency for Clinical Laboratory Sciences. Assuming that students have completed the required courses indicated above in the freshman, sophomore, and junior years, the remaining curriculum may be as follows.

**SENIOR YEAR**

The professional (clinical) program consists of a minimum of 12 months of didactic and practical instruction. The first summer session and fall semester are devoted to lectures, laboratory experience, demonstrations, short generalist rotations, and seminars covering theory and technique in clinical laboratory science. During the last semester, students have the opportunity to rotate through the clinical laboratory facilities of The University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Center, and other hospitals in Cedar Rapids, Des Moines, Marshalltown, and Waterloo.

The program is made up of the following courses.

- 49:119 Clinical Laboratory Instruments and Techniques 3 s.h.
- 49:122 Chemistry for Clinical Laboratory Science 4 s.h.
- 49:123 Immunohematology for Clinical Laboratory Science 3 s.h.
- 49:124 Hematology for Clinical Laboratory Science 4 s.h.
- 49:125 Microbiology for Clinical Laboratory Science 4 s.h.
- 49:126 Clinical Chemistry and Body Fluids 4 s.h.
- 49:127 Clinical Hematology and Immunohematology 4 s.h.
- 49:128 Clinical Microbiology, Parasitology, Molecular Pathology 4 s.h.
- 49:131 Clinical Laboratory Science Seminar 2 s.h.
- 49:132 Clinical Laboratory Science Management Topics and Projects 1 s.h.

**Admission**

The clinical laboratory science/medical technology professional program is limited to 16 students. They begin the program in late May and finish it the following May.

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.

- Chemistry, including qualitative analysis, organic chemistry, and biochemistry 14 s.h.
- Mathematics 3 s.h.
- Statistics 3 s.h.
- Biology, including general zoology, microbiology, and human physiology 14 s.h.

Applications close October 15. 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 Clinical Laboratory Sciences 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.
JUNIOR YEAR
29:11-12 College Physics 8 s.h.

JUNIOR YEAR
60:1 Principles of Human Anatomy 3 s.h.
72:130 Systemic Physiology 3 s.h.
Either of these:
22C:1 Survey of Computing 3 s.h.
22C:16 Introduction to Programming 4 s.h.
One of these:
22S:25 Elementary Statistics and Inference 3 s.h.
3:10-11 Principles of Biology I-II 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, radioimmunotherapy, immunomass assay 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.

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 cumulative grade-point average of at least 2.50;
- fulfillment of the College of Liberal Arts General Education Program 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 biology; and
- a minimum of 3 semester hours in mathematics, including at least elementary functions.

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 eight students. Prospective students are encouraged to consult with the program office to plan an appropriate preprofessional program.

PHYSICAL THERAPY

Director: David H. Nielsen
Professor: David Nielsen
Professor emeritus: Gary Smith
Associate professors: Thomas Cook, H. John Yack
Assistant professors: Martin Bilodeau, Heather Hartsell, Richard Shields, Kathleen Sluka
Adjunct assistant professors: Sandra Cassidy, William Dostal, John Roscencrantz, Chris Zimmerman
Lecturer: Byron Bork
Adjunct lecturer: Donald Shurr

Graduate degrees: M.P.T.; M.A. in Physical Therapy

Physical therapists participate in evaluating of the capabilities and disabilities of patients. They provide treatment to alleviate pain and to prevent, identify, assess, correct, or alleviate problems of acute or prolonged movement dysfunction, thereby promoting optimal human health and function. Research, teaching, and administration also are part of a physical therapist’s professional role.

A wide variety of opportunities exist for professional practice in general or specialized hospitals, in programs for children with disabilities, and in private physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, home health agencies, school systems, and athletic departments. Additional career opportunities are available for teaching in physical therapy educational programs.

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 students in the basic professional program (36 in each class) 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 sciences 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.
101:120 Professional Issues and Ethics 1 s.h.
101:141 Principles of Physical Therapy 3 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.
101:206 Health Promotion and Cardiopulmonary Therapeutics 4 s.h.

Third Semester
101:122 Psychosocial Aspects of Patient Care 1 s.h.
101:192 Clinical Education II 3 s.h.
101:201 Applied Clinical Medicine 2 s.h.
101:202 Orthopedic Physical Therapy I 4 s.h.
101:224 Principles of Motor Control and Applied Neuroscience 3 s.h.
101:249 Research Practicum I 2 s.h.
Elective(s) 2 s.h.

Fourth Semester
101:121 Physical Therapy Management and Administration 3 s.h.
101:170 Prosthetics and Orthotics 2 s.h.
101:193 Clinical Education III 1 s.h.
101:203 Orthopedic Physical Therapy II 2 s.h.
101:225 Neuromuscular Therapeutics II 3 s.h.
101:250 Research Practicum II 2 s.h.
Elective(s) 2 s.h.

Summer Session
101:194 Clinical Internship (May-August) 6 s.h.

Fifth Semester
101:194 Clinical Internship (August-October) 3 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
program developed by the Student Health Service in cooperation with the University of Iowa Hospitals and Clinics. All costs of the screening program are the student’s responsibility. Students also are required to have health insurance.

Graduate Programs

Master of Arts

The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: cardiopulmonary, musculoskeletal, and neuromuscular. The program focuses on theoretical and clinical applications for assessment and treatment of patient disorders in the three specialty areas. Clinical practical experiences are offered to complement these specialties.

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, kinetics, and kinematics impairment evaluation), and motor control-neuromuscular function (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.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>63:162</td>
<td>Design and Analysis of Experiments in the Biomedical Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:212</td>
<td>Biomedical Instrumentation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:301</td>
<td>Thesis: Physical Therapy (may be taken pass/fail)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>101:326</td>
<td>Analysis of Scientific Literature</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

One of the following specialty courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>101:260</td>
<td>Advanced Health Promotion and Cardiopulmonary Therapeutics</td>
<td>arr.</td>
</tr>
<tr>
<td>101:275</td>
<td>Analysis of Sensorimotor Systems in Health and Disease</td>
<td>arr.</td>
</tr>
<tr>
<td>101:285</td>
<td>Biomechanical Analysis in Rehabilitation</td>
<td>arr.</td>
</tr>
</tbody>
</table>

The following courses are recommended.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7W:120</td>
<td>Introduction to Instructional Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>27:141</td>
<td>Exercise Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>27:153</td>
<td>Connective, Muscle, Nerve Tissue Anatomy</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>69:133</td>
<td>Introduction to Human Pathology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>71:120</td>
<td>Drugs: Their Nature, Action, and Use</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>101:270</td>
<td>Occupational Biomechanics</td>
<td>arr.</td>
</tr>
<tr>
<td>101:295</td>
<td>Applied Electromyography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:325</td>
<td>Independent Study</td>
<td>arr.</td>
</tr>
<tr>
<td>101:327</td>
<td>Research in Therapeutics</td>
<td>arr.</td>
</tr>
<tr>
<td>101:280</td>
<td>282, or 284 Practicum (teaching, research, and/or clinical; maximum of 6 semester hours)</td>
<td>3 sch.</td>
</tr>
</tbody>
</table>

Admission

To be considered for admission, applicants must be graduates of an approved professional program of physical therapy and must have earned a grade-point average of at least 2.75 (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; recommendations from three sources; and a personal interview. Foreign student applicants whose native language is not English must have a score of at least 600 on the Test of English as a Foreign Language (TOEFL). 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 in physical therapy is provided through a special therapeutic track in the Department of Exercise Science. The program is described in detail under “Exercise Science” in the College of Liberal Arts section of the Catalog.
Students who successfully complete the Ph.D. program in exercise science 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. Prerequisites include the required courses (or comparable courses/experiences) for the Master of Arts in physical therapy at The University of Iowa.

To be considered for admission, students must have earned a grade-point average of at least 3.00 on all graduate work undertaken. In addition, GRE scores must be on file at The University of Iowa. Foreign student applicants whose native language is not English must have a score of at least 600 on the Test of English as a Foreign Language (TOEFL).

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

101:120 Professional Issues and Ethics 1 s.h.
101:121 Physical Therapy Management and Administration 3 s.h.
101:122 Psychosocial Aspects of Patient Care 1 s.h.
101:131 Therapeutic Physical Agents I 4 s.h.
101:141 Principles of Physical Therapy 3 s.h.
101:170 Prosthetics and Orthotics 2 s.h.
101:185 Musculoskeletal Therapeutics 2 s.h.
101:191 Clinical Education I 1 s.h.
101:192 Clinical Education II 1 s.h.
101:193 Clinical Education III 0-1 s.h.
101:194 Clinical Internship 1 s.h.
101:201 Applied Clinical Medicine 2 s.h.
101:202 Orthopedic Physical Therapy I 4 s.h.
101:203 Orthopedic Physical Therapy II 2 s.h.
101:204 Problem-solving sessions in evaluation, management of patients with musculoskeletal conditions; advanced and specialty approaches.
101:206 Health Promotion and Cardiopulmonary Therapeutics 4 s.h.
101:210 Kinesiology and Pathomechanics 4 s.h.
101:214 Advanced Seminar in Physical Therapy arr.
101:216 Applied Electromyography 3 s.h.
101:224 Principles of Motor Control and Applied Neuroscience 3 s.h.
Professional Program

Master of Physician Assistant Studies

The Physician Assistant Program is an integral part of the College of Medicine. The first year of the program is taken at The University of Iowa Health Center. A major portion of the second-year clinical work occurs throughout the state in hospitals, clinics, and office practice settings. The two-year educational program is divided into three broad phases.

The initial didactic phase consists of seven months of course work in a number of basic science areas, including anatomy, biochemistry, 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, and preventive medicine.

A new curriculum has been developed in the area of patient assessment. It involves a sequence of didactic instruction coupled with practical experiences involving simulated and real patients. The level and intensity of the patient interactions systematically increase through the curriculum as the student gains confidence and clinical competence.

The second phase includes a five-week interim session followed by a 12-week Introduction to Clinical Medicine for Physician Assistant Students. These courses involve 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. They continue with instruction in obtaining a problem-oriented medical history and performing a physical examination. The latter course is taken with sophomore medical students.

Two weeks prior to clinical rotations, students complete Foundations of Clinical Practice, which includes instruction in several skill areas (sutting, injections, prescription writing, medical orders, and so forth), completion of the Advanced Cardiac Life Support Program, and a short course in clinical pathology.

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 electives 12 to 14 weeks in length. These may include geriatrics, emergency medicine, cardiology, dermatology, and orthopedics.

The clinical rotations are designed to provide instruction and experience in caring for patients in a way that facilitates effective integration of the knowledge, skills, behaviors, 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 Iowa City and Des Moines, Broadlawns Medical Center in Des Moines, and other affiliated hospitals throughout the state. The program emphasizes primary care medicine, offering students additional clinical experience through placement with selected preceptors involved in office-based practices, typically in medically underserved rural areas.

The didactic and clinical phases of the PA 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 (17:201) requires the completion of a senior paper. Each student is expected to select a pertinent health care topic or issue and 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.

Professional Curriculum

FIRST YEAR

Phase I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>50:105</td>
<td>Law and Medicine for Physician Assistant Students</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>60:111</td>
<td>Gross Human Anatomy for Physician Assistant Students</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>61:112</td>
<td>Health Sciences Microbiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>69:130</td>
<td>Clinical Laboratory Medicine for Physician Assistant Students</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>69:133</td>
<td>Introduction to Human Pathology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>71:125</td>
<td>Pharmacology for Health Sciences: Physician Assistant Students</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>72:164</td>
<td>Human Physiology for Physician Assistant Students</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:164</td>
<td>Biochemistry for Physician Assistant Students</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>117:102</td>
<td>Introduction to the Medical and Physical Examination for Physician Assistant Students</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>117:103</td>
<td>Introduction to Research Design and Methodology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>117:104</td>
<td>Interpretation of Medical Literature</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>117:105</td>
<td>Preventive Medicine for Physician Assistant Students</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Phase II

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>50:169</td>
<td>Clinical Therapeutics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>50:175</td>
<td>Introduction to Clinical Medicine for Physician Assistant Students</td>
<td>15 s.h.</td>
</tr>
</tbody>
</table>

SECOND YEAR

Phase III

The following are required clinical rotations.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>66:105</td>
<td>Gynecology for Physician Assistant Students</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>70:555</td>
<td>Pediatrics for Physician Assistant Students</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>73:100</td>
<td>Psychiatry for Physician Assistant Students</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>75:555</td>
<td>General Surgery for Physician Assistant Students</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>
They must hold a baccalaureate degree from a regionally accredited institution in the United States. They must have a cumulative grade-point average of 3.0 (where A = 4.0) 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 cumulative and science grade-point averages of 3.50; a total of 132 semester hours of college credit, at least 65 of which 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 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 December 1. Each applicant must complete the Physician Assistant Program application and submit at least three letters of recommendation. Application materials, GRE scores, and the majority of prerequisite course requirements must be completed by the December 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.

### Courses

#### 117:1 Physician Assistant Clinical Second Year

Arranged for: Future physicians must consider the physician assistant professional program, applicants must meet the following requirements.

**Biochemistry ● Medicine**

**BIOCHEMISTRY**

Head: Alan G. Goodridge

Professors: Arthur Arrone, Mary Sue Coleman, John E. Donelson, Alice B. Fulton, Alan G. Goodridge, Rex Montgomery, Bryce V. Plapp, Peter Rubenstein, Arthur A. Spector, Lewis D. Stegink, Earle Stellwagen, Larry S. Tobacman, Joseph Walder


Associate professor emeritus: Gene F. Lata

Adjunct associate professor: Robert E. Cohen

Assistant professors: Kenneth P. Murphy, Lois Weisman

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 take 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. The requirements are outlined below. Students choose advanced science electives to supplement biochemical studies or as a part of a minor or a double major. Examples of two such electives are 2:128 Fundamental Genetics and 22C:7 Introduction to Computing with FORTRAN. Science elective courses numbered below 100 need adviser's approval to be counted toward the degree.

Transfer credit for biochemistry courses requires the approval of the undergraduate adviser in Biochemistry.

Bachelor of Science

The B.S. degree in biochemistry requires 61 semester hours in addition to the College of Liberal Arts General Education Program requirements. The required courses are as follows.

2:10-11 Principles of Biology I-II 8 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:18-19 Chemical Science I-II (preferred) 6 s.h.
4:16 Principles of Chemistry Lab 2 s.h.
4:121-122 Organic Chemistry I-II 6 s.h.
4:131 Physical Chemistry I 3 s.h.
or
4:132 Physical Chemistry II 3 s.h.
22M:15 Mathematics for the Biological Sciences 4 s.h.
22M:16 Calculus for the Biological Sciences 4 s.h.
29:11-12 College Physics 8 s.h.
99:1 Orientation and Introduction to the Field of Biochemistry (taken twice) 0 s.h.
99:101 Technical Writing in Biochemistry 1 s.h.
99:102 Undergraduate Seminar 1 s.h.
99:120 Biochemistry and Molecular Biology I 4 s.h.
99:130 Biochemistry and Molecular Biology II 4 s.h.
99:140 Experimental Biochemistry 4 s.h.
99:155 Research, Independent Study (must be taken for B.S. honors) 6 s.h.
Advanced science electives, chosen in consultation with adviser 9 s.h.

*BStudents may register in 99:155 only if they have earned grades of A or B in 99:120, 99:130, and 99:140, or have consent of adviser and instructor, 6 semester hours is the minimum requirement for credit in this course.

Bachelor of Arts

The B.A. degree in biochemistry requires 61 semester hours in addition to the College of Liberal Arts General Education Program requirements. The required courses are as follows.

2:10-11 Principles of Biology I-II 8 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:18-19 Chemical Science I-II (preferred) 6 s.h.
4:16 Principles of Chemistry Lab 2 s.h.
4:121-122 Organic Chemistry I-II 6 s.h.
4:131 Physical Chemistry I 3 s.h.
or
4:132 Physical Chemistry II 3 s.h.
22M:15 Mathematics for the Biological Sciences 4 s.h.
22M:16 Calculus for the Biological Sciences 4 s.h.
29:11-12 College Physics 8 s.h.
99:1 Orientation and Introduction to the Field of Biochemistry (taken twice) 0 s.h.
99:101 Technical Writing in Biochemistry 1 s.h.
99:102 Undergraduate Seminar 1 s.h.
99:120 Biochemistry and Molecular Biology I 4 s.h.
99:130 Biochemistry and Molecular Biology II 4 s.h.
99:140 Experimental Biochemistry 4 s.h.
Advanced science electives, chosen in consultation with adviser 9 s.h.

In addition, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include 4 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.

Four-Year Graduation Plan

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

Bachelor of Science

Before the third semester begins: 22M:25 or 22M:35; 4:18-19 or 4:13-14, and 4:16; 99:1; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 4:121-122 and 4:141; 22M:26 or 22M:36; 2:10-11; and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 29:17-18, 99:120, 99:130, and 99:140, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 4:131 or 4:132, a science elective, and at least 3 semester hours of 99:155

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

Bachelor of Arts

Before the third semester begins: math through 22M:16 or higher; 4:18-19 or 4:13-14, and 4:16; 99:1; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 44:121-122, 2:10-11, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 29:11-12, 99:120, 99:130, and 99:140, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 4:131 or 4:132, and a science elective

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

Honors

Qualified students may earn an honors degree in biochemistry. They must be 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 the following.

- 99:241-242 Biophysical Chemistry I-II 6 s.h.
- 99:282 Seminar 2 s.h.
- *142:210 & 215 Molecular Biology I-II 7 s.h.

*The molecular biology courses are interdisciplinary; for course descriptions, see “Molecular Biology” in the College of Medicine section of the Catalog.

Students spend the other half of their time working in four 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 8 semester hours consisting of two short courses (1 semester hour each) in biochemistry and 6 semester hours of elective science courses (numbered above 100 or 200) in other departments.

Students take the comprehensive examination before the end of June in their second year, after which they are admitted formally to degree candidacy and begin to concentrate on thesis research. The program culminates in students’ successful defense of their completed thesis work before an examining committee.

In addition to meeting these requirements and those of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two or three semesters.

Throughout the program, students are associated with 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 flexible enough to accommodate students with bachelor’s degrees in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year, college-level courses in organic and physical chemistry, biology, physics, and mathematics through calculus. Students are expected to have had one or more introductory courses in biochemistry.

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, protein folding, complex carbohydrate structure and function, regulation of gene expression, mechanisms involved in transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, structure, and membrane determinants of cell shape and motility.

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 campus-wide interactions between research groups. These include the Electron Microscopy Facility, Fermentation Facility, Image Analysis Facility, High Field NMR Facility, High Resolution Mass Spectrometry Facility, and Academic Computing (through Information Technology Services). 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 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, 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

- 99:000 Cooperative Education Internship O s.h.
- 99:1 Orientation and Introduction to the Field of Biochemistry 0 s.h.
- 99:101 Biochemistry and its application to other areas of basic sciences; biochemical studies, research, careers. Offered fall and spring semesters.
- 99:101 Technical Writing in Biochemistry 1 s.h.
- 99:102 Undergraduate Seminar 1 s.h.
- 99:110 Biochemistry 3 s.h.
- 99:120 Biochemistry and Molecular Biology I 4 s.h.
- 99:121 Biochemistry and Molecular Biology II 4 s.h.
- 99:120; and a g.p.a. of B or better in the three.
- 99:125 Research, Independent Study 2-6 s.h.
- 99:130 Research, Independent Study 2-6 s.h.
- 99:135 Research, Independent Study 2-6 s.h.
- 99:140 Research, Independent Study 2-6 s.h.
- 99:140 Experimental Biochemistry 4 s.h.
- 99:140; and a g.p.a. of B or better in the three.
- 99:155 Research, Independent Study 2-6 s.h.
- 99:155 Research, Independent Study 2-6 s.h.
- 99:160 Biochemistry Tutorial 0 s.h.
- 99:161 Biochemistry for Dental Students 4 s.h.
- Open only to dental students or to others with consent of instructor. Recommended: 4:122.
434  Medicine .  Biochemistry

99:162 Biochemist for Pharmacy Students  4 s.h.
Open only to pharmacy students or to others with consent of instructor. Prerequisite: 4:121 or consent of instructor. Recommended: 4:122.

99:163 Biochemistry for Medical Students  4 s.h.
Concepts of biochemistry; their application to understanding clinical problems. Open only to medical students.

99:164 Biochemistry for Physician Assistant Students  3 s.h.
Aspects of general biochemistry necessary for understanding the biochemical basis of human disease; analysis of appropriate clinical cases. Prerequisite: 99:110 or equivalent biochemistry survey.

99:215 Genetics Seminar  0-2 s.h.
May be repeated. Prerequisite: 2:128 or consent of instructor. Same as 2:215, 61:215.

99:226 Enzyme Kinetics & Bioorganic Mechanisms  1-2 s.h.
Principles, applications of enzyme catalysis; mechanisms of typical biochemical reactions. Prerequisite: 99:120 or 99:241 or consent of instructor.

99:228 Regulation of Metabolism I  1-2 s.h.
Regulation of central metabolic pathways. Prerequisite: 99:130 or consent of instructor.

99:237 Topics in Biochemistry  1-2 s.h.
May be repeated. Prerequisite: 99:130.

99:241 Biophysical Chemistry I  3 s.h.
Quantitative analyses of biochemical systems; application of thermodynamics, equilibrium, spectoscopy, X-ray crystallography to study of structure and function of macromolecules. Consent of instructor required. Prerequisite: one year of biochemistry. Recommended: course in physical chemistry.

99:242 Biophysical Chemistry II  3 s.h.
Continuation of 99:241, which is prerequisite; hydrodynamics, electrophoresis, chromatography, kinetics, macromolecular interactions and dynamics, regulatory systems.

99:261 Research Techniques  1-5 s.h.
Laboratory rotation for first-year graduate students in biochemistry.

99:272 Seminar in Cellular and Molecular Biology  1 s.h.
Same as 60:272, 71:272, 72:272.

99:275 Perspectives in Biocatalysis  1 s.h.

99:282 Seminar  0-1 s.h.
Techniques for presentation of scientific information.

99:292 Research Biochemistry  3 s.h.
Thesis research.

DERMATOLOGY

Head: John S. Strauss
Professors: Richard M. Caplan, Donald T. Downing, Warren Pieter, Thomas L. Ray, Kenzo Sate, John S. Strauss, Duane Whitaker
Associate professors: Kathi C. Madison, Mary S. Store
Assistant professor: Christopher J. Arpey

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 10 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

62:1 Clinical Dermatology  2 s.h.
Basic dermatology; lectures, independent study, clinical experience. Open only to third year medical students.

62:2 Dermatology Elective  arr.
Advanced clinical experience, dermatologic surgery, special assignments. Open only to fourth year medical students.

62:4 Research in Dermatology  1 s.h.
General principles of medical research; clinical or laboratory projects; individual study.

62:5 Dermatology Elective for Physician Assistant Students  arr.

62:6 Dermatology - McFarland Clinic, Ames, IA  4 s.h.
Common skin diseases, treatment options encountered in a typical dermatology group practice, broad range of pediatric and adult cases, both medical and management opportunities to improve diagnostic and management skills. Open only to senior medical students. Prerequisite: 62:1.

62:999 Special Studies off Campus  arr.

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) 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 Dietary 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 offered. (For course descriptions, see “Nondepartmental Courses” in the College of Medicine introductory section of the Catalog).

50:201-202 Dietetic Seminar  2 s.h.
50:203-204 Clinical Dietetics  4 s.h.
50:205-206 Projects in Dietetics  1 s.h.
50:207-208 Dietetic Research  1 s.h.
50:209-210 Hospital Dietary Administration  2 s.h.
50:216 Analysis of Food Service Systems  arr.

Students generally complete the program with 9 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 health promotion, 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.

FAMILY PRACTICE

Head: Evan W. Kligman
Professors: Evan W. Kligman, Glenys O. Williams
Professor emeritus: Reuben B. Widmer
Clinical professor: John E. Sutherland
Associate professors: George R. Bergus, David M. Rosenthal
Associate professors (clinical): Richard Dobyns, David Kears
Clinical associate professors: Gordon Baustian, Larry Beatty, Dean Bunting, Charles Driscoll, Robert L. Friedman, Gregory L. Hookstra, David McInnes, Michael Jung, Gerald J. McGowan, Michael Sparracino
Assistant professors: John W. Ely, Daniel S. Fick, Gerald J. Gojer, Barcy T. Levy
Associates: Larry D. Beaty, Berly Engbrechtsen, Nicholas S. Galito, Dawn S. Laurantden, Kelly Skelly, Dennis J. Walter, Alicia Weissman

The Family Practice Program prepares primary care physicians. The department offers course work that is included throughout the four-year M.D. program. Eighteen 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 also is 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. The 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 on the University’s health center campus, contains faculty offices and the Family Practice Center, where patients are seen by appointment. Patients are assigned to resident physicians, who provide medical care with faculty supervision. Each resident is responsible for his or her patients for the duration of the resident’s training program. Emphasis is placed on teaching the principles of practice management, including organizational and administrative decision making, patient record and bookkeeping procedures, and chart auditing methodologies—required to manage a private practice. The department also has a rural satellite office located in Lone Tree, Iowa.

Courses
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 Health Care Delivery in the U.S. 2 s.h.
Structure of United States health care system; need for increased primary care, improved career prospects in primary care.

115:203 Cultural Diversity in Medicine 2 s.h.

115:205 Practical Clinical Nutrition 2 s.h.

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; realistic background for evaluation of family medicine 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.

115:407 Family Practice Iowa Lutheran 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 Center; experience in the Family Stres Clinic observing family centered counseling; nursing home visits, work with departmental social worker and sports medicine specialists.

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 in 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 quadraplegia, paraplegia, brain injury, stroke; understanding of multiple issues involved in brain injury rehabilitation.

115:419 Family Practice Clerkship, Davenport 4 s.h.
Assignment to problems commonly seen in family practice office; supervision by residents and faculty for history and physical examination and diagnostic workups and treatment of each specific problem; exposure to acute 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.

115:424 Senior Selective in Family Practice, Waterloo 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.

115:430 Emergency Medicine: Marrian Health Center, Sioux City 4 s.h.
Routine emergency problems in regional trauma center, functions of area resource hospital (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

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/or private physicians; problems commonly encountered in ambulatory situations; study of selected patients, their families; skills, efficient use of allied health professionals.

115:556 Family Practice II for Physician Assistant Students

115:999 Special Studies off Campus Clerkships may include community hospitals.

GENETICS
Graduate degree: Ph.D. in Genetics
The Ph.D. program in genetics is interdepartmental, involving members of the Departments of Biochemistry, Biological Sciences, Microbiology, and Physiology and Biophysics, 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 members, degree requirements, and courses.

HOSPITAL AND HEALTH ADMINISTRATION

Director: James E. Rohrer
Professor emeritus: Gerhard Hartman
Associate professor: Douglas S. Wakefield
Adjunct associate professors: R. Edward Howell, Robert L. Ludke, William D. Petasnick
Assistant professor: Peter E. Hilsenrath
Adjunct assistant professors: Richard F. Hansen, William W. Hesson, Maureen K. Lienau, Richard H. Murphy, John H. Stacey, Kenneth H. Yerinton
Associates: Thomas E. Vaughn, David K. Wyatt
Graduate degrees: M.A., Ph.D. in Hospital and Health Administration
For more than 40 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, managed care 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
requirements of effective managerial decision making, planning, and control. Second-year students are exposed to advanced management concepts and applications to health care.

The degree requires 60 semester hours of graduate work. Required courses, totaling 36 semester hours and representing a core of disciplines and fields of knowledge, are carefully sequenced to establish a unified approach to learning. The curriculum includes the following required courses:

- 63:158 Principles of Epidemiology (3 s.h.)
- 63:161 Introduction to Biostatistics (3 s.h.)
- 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 Management 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.)
- 8-243 Intermediate Statistical Methods (3 s.h.)
- 7P:243 Intermediate Statistical Methods (3 s.h.)
- 7P:244 Correlation and Regression (4 s.h.)
- Electives (two) (6 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.

### 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, nontraditional students must have related work experience, must complete all general requirements for a baccalaureate degree at their undergraduate institution by the end of the summer session of their junior year, and must formally apply for admission to the Graduate Program (see “Admission”).

During the senior year, students enroll in the program in hospital and health administration as undergraduates. After completing the first year of study, they receive the bachelor’s degree from the undergraduate institution. Students then are admitted formally to The University of Iowa Graduate College. The master’s degree is conferred after students complete 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 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**
  - 80:239 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.)
- **Health Services Research I**
  - 80:261 Research Methodology and Statistics (3 s.h.)
  - 80:262 Health Services Research II (3 s.h.)
  - 80:263 Independent Research Project (arr.)

### 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 grade-point average of at least 3.00 (on a 4.00 scale) is required for M.A. applicants. A grade-point average of at least 3.25 (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 (GMAT) scores above 550 are preferred. Courses in finance, economics, and statistics are strongly recommended. Applicants also should be computer literate. International students must have a TOEFL score of at least 600.

All applicants are required to submit academic transcripts, GRE or GMAT 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 alumnus 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 year. 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.

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 continuing education, research, and fund raising.

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 in the health care industry; talks by executives from academic centers, health related associations, multihospital 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 regulation, current issues. Same as 62:200.

80:201 Health Care Management 3 s.h.
Application of basic management principles such as leadership, goal setting, decision making, human resource management, to health care organizations. Consent of instructor required.

80:202 Hospital Organization and Management 3 s.h.
Operations; governance, 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 the health field: utility of model-building approach in 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 Managed Care Organizations 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 not for profit organizations; emphasis on manpower education and training, personnel administration, clinic scheduling, managerial accounting, other internal issues. Prerequisite: 80:201.

80:210 Long-Term Care Management 3 s.h.
Options, organization, delivery in the United States; needs of the long term care patient; emphasis on management of facilities, such as nursing homes, hospices, specialized care units. Offered by Saturday & Evening Classes. Same as 152:210.

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, 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 63:250.

80:212 Health Economics I 3 s.h.
Intermediate-level demand 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, cost analysis and rate setting, budgeting, reimbursement, managed care contracting and health reform initiatives; emphasis on use 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.

80:218 Topics in Health Administration 1-3 s.h.
Topics related to contemporary problems that concern health care students, administrators. May be repeated.

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 1 s.h.
Implications of ethical 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, managerial processes, procedures, psychological factors characteristic of human resource 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 3 s.h.

80:235 Administrative Residency/Fellowship 3 s.h.

80:237 Legal Aspects of Health and Medical Care 3 s.h.
Statutory, common law frameworks applicable to health care system; court decisions that illustrate applications of general legal doctrines in hospital, health settings. Consent of instructor required.

80:239 The Politics of Health Policy 3 s.h.
How public policy affecting health is generated, promoted, opposed, 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 basis 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.

80:253 Seminar: Health Systems Management 3 s.h.
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 1 s.h.
Review of literature on methodological, substantive issues in health services research. Consent of instructor required.

80:261 Health Services Research I 3 s.h.
Fundamentals of problem formulation, design, methodology, emphasis on evaluation of health systems. Consent of instructor required.

80:262 Health Services Research II 3 s.h.
Continuation of 80:261, which is prerequisite; defense of research protocol.

80:263 Independent Research Project 3 s.h.
Continuation of 80:262, which is prerequisite; design, pursuit, completion of project.

80:280 Independent Study and Research 3 s.h.
Supervised tutorial. Consent of instructor required.

80:284 Master's Thesis 1-6 s.h.
Consent of instructor required. Prerequisite: completion of 30 semester hours toward M.A. degree.

80:285 Ph.D. Dissertation 3 s.h.
Research for preparation of dissertation; seminar presentation. Consent of instructor required.
HUMAN NUTRITION

The Ph.D. program in human nutrition is no longer accepting applications and will close when currently enrolled students graduate.

Courses

65:208 Nutrition Research arr.

IMMUNOLOGY

Director: Gary Koretzky

Professors: Michael Apicella (Microbiology), Robert Ashman (Internal Medicine), Zuhair Ballas (Internal Medicine), Bradley Britigan (Internal Medicine), John Butler (Microbiology), Thomas Casale (Internal Medicine), John Cowdry (Internal Medicine), Nancy Goeken (Internal Medicine), Charles Grose (Pediatrics), Gary Hunnkinghake (Internal Medicine), John Kemp (Pathology), David Lubratto (Urology), Richard Lynch (Pathology), William Saussef (Internal Medicine), Stanley Perlman (Pediatrics), John Weiler (Internal Medicine), Joel Weinstock (Internal Medicine)

Associate professors: Galil Bishop (Microbiology), Morris Dailey (Pathology), Elizabeth Field (Internal Medicine), Arthur Krieg (Internal Medicine), Charles Lutz (Pathology), Stanley Naides (Internal Medicine), Larry Schlesinger (Internal Medicine), Thomas Waldschmidt (Pathology), George Weiner (Internal Medicine), Mary Wilson (Internal Medicine)

Assistant professor: John Harry (Microbiology), Gary Hunninghake (Internal Medicine), Ted Koerner (Pathology), Gary Koretzky (Internal Medicine), Arthur Krieg (Internal Medicine), Charles Lutz (Pathology), Stanley Naides (Internal Medicine), Larry Schlesinger (Internal Medicine), Thomas Waldschmidt (Pathology), George Weiner (Internal Medicine), Mary Wilson (Internal Medicine)

Assistant professor: John Harry (Microbiology), Morris Dailey (Pathology), Elizabeth Field (Internal Medicine), Arthur Krieg (Internal Medicine), Charles Lutz (Pathology), Stanley Naides (Internal Medicine), Larry Schlesinger (Internal Medicine), Thomas Waldschmidt (Pathology), George Weiner (Internal Medicine), Mary Wilson (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:

148:211 Graduate Immunology Seminar 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 1-11 is required, students with expertise 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.

Admission

Information regarding the program and application procedures is available from the program office.

Financial Aid

Students in the Immunology Program receive stipends and tuition support from a variety of sources. Available aid includes 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.

Courses

148:159 Pathogenic Bacteriology 5 s.h.

Emphasis on mechanisms of pathogenicity, advanced laboratory methods for isolation, identification. Prerequisites: grade of C or higher in 61:157 and consent of instructor. Same as 61:159.

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. Same as 61:201.

148:202 Immunology II 3 s.h.

Immunoglobulin molecule mechanisms, genetic regulation, generation of antigenic diversity, ligand-receptor interactions, cell signaling; immune effector mechanisms, including cytotoxic T cells, natural killer cells, macrophages, neutrophils; complement; adhesion molecules; cell migration and homing; emphasis on problem-oriented experimental approaches. Prerequisites: 148:201. Same as 61:202.

148:211 Graduate Immunology Seminar 1 s.h.

Graduate standing in immunology required.

148:221 Advanced Topics in Immunology 3 s.h.

In depth analysis of selected areas. Prerequisites: 148:201 and 148:202. Same as 61:207.

148:231 Research in Immunology arr.

Laboratory research. Graduate standing in Immunology required.

148:250 Topics in Bacterial Molecular Pathogenesis 2 s.h.

Same as 61:250.

148:251 Principles of Medical Immunology 2 s.h.

Basic molecules, cells, organelles of immune system, mechanisms and regulations of immune response; clinical principles of normal and abnormal immunity.

148:268 Molecular Biology of Animal Viruses 3 s.h.

Molecular biology of animal RNA and DNA viruses, interaction of these viruses with embryonic cell; mechanisms of viral latency, persistence, cellular transformation, oncogenesis. Major in biological science required. Prerequisite: 61:178 or course in biochemistry or equivalent. Same as 61:268.

148:270 Ethics and Responsible Conduct in Research 1 s.h.

Conducting and reporting research, peer review, mentoring and laboratory techniques, human and animal subject, misconduct, conflict of interest. Same as 127:270, 132:270, 142:270.

148:301 Directed Study in Immunology arr.

Consent of instructor required.


INTERNAL MEDICINE

Head: Francois M. Abboud


Associate professors emeriti: David C. Funk, Jeanne M. Smith


Clinical associate professors emeriti: Oscar C. Beasley, C.E. Schrock, George G. Spellman Sr., Lawrence F. Staples
In the third year, students are assigned for nine weeks to medical services at The University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Center, or to hospitals of the Des Moines Area Medical Education Consortium. Under the guidance of the Department of Internal Medicine house staff and faculty members, they actively participate as members of an inpatient ward team or ambulatory care team in the evaluation and treatment of internal medicine patients.

In the fourth year, students may select a clinical experience to fit their own career goals from courses offered in general medicine, subspecialties, and a subspecialty program.

Graduate Program

The department offers four 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 internships are accepted from approved medical schools. Postdoctoral fellows who have received internships are accepted from approved medical schools.

78:120 Subinternship in Internal Medicine 4 s.h.
Student responsibility for evaluating, treating, and following patients admitted to inpatient general medicine services. Open only to fourth-year medical students.

78:220 Subinternship General Internal Medicine and ICU, Des Moines 8 s.h.
Eight-week rotation at Des Moines Medical Education Consortium; experience as a subintern in general internal medicine and the ICU, for senior medical students.

78:250 Clinical Allergy Immunology arr.
Pathogenesis, diagnosis, and management of asthma and allergic and immunologic diseases; conducting and interpreting relevant specialized clinical and laboratory tests; emphasis on outpatient, formal and informal teaching sessions.

78:251 Survey of Immunology Same as 61:147.

78:253 Clinical Immunology and Immunopathology, Laboratory and Clinical Correlations Same as 69:249.

78:290 Research in Allergy Immunology arr.
Faculty directed investigations for students interested in complement, peptides, molecular biology studies, molecular biology of Cl inhibitor and properdin, primary immunodeficiency diseases, tumor immunology, immune parameter of alcohol-related diseases, transplantation immunology.

78:300 Clinical Cardiology arr.
Development of breadth, depth in diagnostic and therapeutic problems encountered in clinical cardiology; participation in evaluation and decisions regarding patients seen sometimes in CardiacVascular Clinic, capacity to develop cardiac and electrophysiology service.

78:304 Electrocardiography arr.
Scalar electrocardiography with option of viewing exercise studies including treadmill testing; initial interpretation of current tracings and daily staff conferences.

78:306 Cardiac Intensive Care Medicine arr.
Work as subsititute in the coronary care unit; responsibility for evaluation, management of patients; in-depth clinical, didactic exposure to critical care medicine.

78:310 Clinical Cardiology: VA Hospital, Des Moines arr.
Work on medical service under supervision of cardiac disease instructor; electrocardiography experience, consultations in cardiovascular disease; work in cardiac, pacemaker clinics of coronary care-intensive care units.

78:325 Clinical Cardiology Coronary Care Experience, Iowa Methodist, Des Moines arr.

78:380 Clinical Pharmacology and Therapeutics Lecture Series 2 s.h.
Open only to seniors, or to juniors with consent of instructor.

78:375 Research in Clinical Pharmacology arr.

78:400 Clinical Endocrinology arr.
New patient evaluation, inpatient referral; returning patients in diabetes, endocrine clinics; complete patient evaluations, charts; participation in clinical conferences.

78:401 Clinical Diabetes arr.
Subinternship at University Hospitals diabetes/general medicine service; inpatient evaluation and management responsibilities, with emphasis on inpatient diabetes care issues.

78:440 Endocrine Research arr.
Participation in all organized educational division activities, suitable clinical activities; work in research laboratory of senior staff member, participation in ongoing project. Consent of instructor required.

78:450 Clinical Gastroenterology arr.
Work as consultation service at University Hospitals and Clinics or Veterans Affairs Medical Center; assistance in diagnostic procedures for patients examined as part of consultation service; participation in patient follow-up through weekly return clinic.

78:490 Research in Gastroenterology arr.
Consent of instructor required.

78:501 Oncology arr.
Diagnostic skills in clinical oncology; methods, value of clinical staging of solid tumors and lymphomas; principles, practice of rational chemotherapy; outpatient follow-up, management of patients with lymphomas, solid tumors.

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 second-year medical students in 50:111 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 a rational approach to diagnosis and treatment.
MEDICAL SCIENTIST TRAINING PROGRAM

Director: Robert E. Fellows (Physiology and Biophysics)
Associate director: William Johnson (Microbiology)

The Iowa Medical Scientist Training Program (MSTP) is a combined M.D./Ph.D. program that prepares trainees for careers in academic medicine, with emphasis on basic and clinical research. The program provides an effective means for integration of graduate education and doctoral research training with the full complement of clinical studies necessary for the medical degree. With few exceptions, requirements for the combined M.D./Ph.D. program can be completed in approximately seven years of continuous study.

Curriculum

In the first two years of the program, trainees enroll in the basic science and introductory clinical portions of the College of Medicine curriculum. This provides a broad exposure to the language and organizing concepts of the preclinical sciences, forming a foundation for medical training.

The first-year curriculum addresses normal structure and function of human organ systems and emphasizes relationships among different disciplines. During the first semester, trainees take courses in biochemistry, gross anatomy, cell biology, and medical genetics. The second semester an integrated systemic core incorporates physiology, histology, and embryology and focuses on the development, structure, and function of human organ systems. Discipline-specific basic science instruction continues throughout the second semester with the medical neuroscience course. In addition, students receive instruction in the foundations of clinical practice, including patient experience in medical history taking and physical examination.

During the summer between the first and second years, trainees pursue a research project under the supervision of a member of the program faculty. Entering trainees may also elect to participate with program faculty in a research project during the summer before their first year.

The second-year curriculum emphasizes abnormal structure and function of human organ systems. Trainees take courses in pathology, microbiology, and pharmacology. After completing the basic science core at the end of the third semester, trainees identify the graduate department or program they will enter at the beginning of the third year. During the fourth semester, trainees enroll full-time in an Introduction to Clinical Medicine sequence that provides instruction and practice in medical history taking, physical and laboratory diagnosis, and clinical therapeutics. The following summer consists of nine weeks of clinical clerkships involving primary patient care.

In addition to integrating the scientific and clinical aspects of the combined program, this early clinical exposure also enhances students’ awareness of research needs in health care. After completing this sequence, trainees maintain clinical contact during the graduate component of the program through clinical research conferences and other approved clinical activities.

During the third through sixth or seventh years, trainees enroll full time in their selected graduate department or program. They spend this time engaged in academic and research experiences appropriate to their development as independent investigators, under direct supervision of MSTP faculty members. This phase of training is pursued with the rigor and standards of academic achievement required of all graduate students at The University of Iowa.

In the first year of graduate training, trainees take advanced course work, engage in research activities, and choose a thesis problem and faculty research adviser. With the completion of advanced course work, they elect to participate with program faculty in a research project during the summer before their fourth year. During the second year, trainees pursue a research project with program faculty. Entering trainees also may elect to participate with program faculty in a research project during the summer before their first year.

The second-year curriculum emphasizes abnormal structure and function of human organ systems. Trainees take courses in pathology, microbiology, and pharmacology. After completing the basic science core at the end of the third semester, trainees identify the graduate department or program they will enter at the beginning of the third year. During the fourth semester, trainees enroll full-time in an Introduction to Clinical Medicine sequence that provides instruction and practice in medical history taking, physical and laboratory diagnosis, and clinical therapeutics. The following summer consists of nine weeks of clinical clerkships involving primary patient care.

In addition to integrating the scientific and clinical aspects of the combined program, this early clinical exposure also enhances students’ awareness of research needs in health care. After completing this sequence, trainees maintain clinical contact during the graduate component of the program through clinical research conferences and other approved clinical activities.

During the third through sixth or seventh years, trainees enroll full time in their selected graduate department or program. They spend this time engaged in academic and research experiences appropriate to their development as independent investigators, under direct supervision of MSTP faculty members. This phase of training is pursued with the rigor and standards of academic achievement required of all graduate students at The University of Iowa.

In the first year of graduate training, trainees take advanced course work, engage in research activities, and choose a thesis problem and faculty research adviser. With the completion of advanced course work, they elect to participate with program faculty in a research project during the summer before their fourth year. During the second year, trainees pursue a research project with program faculty. Entering trainees also may elect to participate with program faculty in a research project during the summer before their first year.
disciplines and subspecialties, they renew and further develop the clinical skills acquired in the first two years of the program. In this year, trainees return to the clinical environment with a sophistication in laboratory science that influences their conceptual approach to problems of human disease. Upon completing the clinical clerkship requirements, trainees are awarded the M.D. and Ph.D. degrees.

Most graduates of the program elect to enter residency programs in clinical medicine and embark on careers as medical school faculty members in clinical disciplines with opportunities for basic and applied research. Other graduates accept academic appointments in the basic science departments and spend a major part of their professional activity in biomedical research and teaching.

Admission

Applicants must meet requirements for admission to the 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 must demonstrate aptitude for and commitment to scientific research, usually through productive research experience as undergraduates. Applicants normally are admitted to the first year of the program, but consideration also is given to individuals currently enrolled in the College of Medicine at The University of Iowa who request admission with advanced standing.

Application Procedures

The University of Iowa College of Medicine participates in the American Medical College Application Service (AMCAS). Program applicants should submit AMCAS to forward their credentials to the College of Medicine (IA131). At the same time, applicants should request a separate MSTP application form from the program office. Applications should be submitted as early as possible to allow careful review by both the College of Medicine Admissions Committee and the Medical Scientist Training Program selection committee. All candidates must take the Medical College Admissions Test (MCAT), preferably in the spring and no later than the summer of the calendar year in which the application is submitted. Candidates are encouraged, but not required, to take the Graduate Record Examination (GRE) General Test before admission. Those who matriculate without GRE scores are required to take the GRE during the first year of the program.

Application to the Graduate College is not required with the program application. Trainees admitted to the program receive assistance with Graduate College enrollment.

Financial Aid

Trainees receive stipend and tuition support from a National Institutes of Health MSTP training grant to The University of Iowa, supplemented by other institutional and individual awards. Students in the graduate phase of training receive support from their graduate departments and interdisciplinary programs. The program office also helps selected trainees apply for competitive national awards for outstanding academic and research achievement.

Courses

50:211 MSTP Research 1 s.h. Research experience. Open only to students in the Medical Scientist Training Program.

50:212 MSTP Clinical Conference 1 s.h. Introduction to clinical research; patient presentations, clinical research topics. Open only to students in graduate phase of Medical Scientist Training Program.

50:270 Responsible Conduct in Research 1 s.h. Misconduct and fraud, proper handling of data, responsible authorship, conflict of interest, research on animals and human subjects. Consent of Medical Scientist Training Program director required.

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 Cain Jr., Charles D. Cox, Lacy Daniels, Michael G. Feis, Rudolph P. Galask (Obstetrics and Gynecology), David T. Gibson (Biocatalysts Professor), E. Peter Greenberg, Charles Grose (Pediatrics), Caroline S. Hartwood, Louis G. Hoffmann, William Johnson, John D. Kemp (Pathology), David M. Lubaroff (Urology), Richard G. Lynch (Pathology), Stanley Perlman (Pediatrics), Erich W. Six, Donald P. Stabul, George V. Stauffer, Mark F. Stinski, C. Martin Stolzlius (Pediatrics), Gail A. Bishop (Internal Medicine), Morris O. Dailey (Pathology), Mary E. Wilson (Internal Medicine)
Associate professors: Emeriti: Robert L. Richardson, Jose E. Rodriguez, Donald H. Walker Jr. Assistant professors: John T. Harty, Bradley D. Jones, Linda L. McCarter, Richard J. Roller Undergraduate degree: B.S. in Microbiology; minor in Microbiology Graduate 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 complete the General Education Program requirements of the College of Liberal Arts. They must complete a minimum of 21 semester hours in microbiology to obtain a B.S. degree. Of these, at least 12 must be taken at The University of Iowa in courses numbered 61:147 and above. No more than 2 semester hours of 61:161 or 61:171 and 1 semester hour of 61:163 may be counted toward the 21-semester-hour requirement. Students may count 61:218, but not 61:220, toward this requirement.

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 (and have the instructor’s consent for specified courses). Mathematics and science courses required by the department for the B.S. degree may not be taken pass/nonpass.

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 during other semesters after they have taken 61:157.

Microbiology majors must take the following courses in addition to required microbiology courses.
honors. which constitutes an introduction to research, students present a written report. requirements receive the B.S. degree with experimental research. At the end of the semester hours in 61:171 Honors Microbiology, more semester hours of course work may be offered by departments other than the major. One of these: 22M:16 Calculus for the Biological Sciences 4 s.h. or 22M:21 Calculus and Modeling I 4 s.h. 22M:25 Calculus I 4 s.h. 22M:35 Engineering Calculus I 4 s.h. 2:10-11 Principles of Biology 1-11 8 s.h. 29:11-12 College Physics 8 s.h.

In addition, the following courses are recommended. 8W:100 Nonfiction Writing 3 s.h. or 8W:112 Writing for the Sciences 3 s.h. 22C:1 Survey of Computing 3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s four-year graduation plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins: 4:13, 4:14, and 4:16; 2:10; an approved calculus class; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 2:11, 4:121, 4:122, and 4:141; 61:157; and at least one-half of the semester hours required for graduation

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

Before the eighth semester begins: 10-12 more semester hours of course work

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

Honors

The honors program is open to juniors and seniors who have a grade-point average of at least 3.20 overall and in microbiology courses. The program requires 25 semester hours of course work in microbiology, including 6 semester hours in 61:171 Honors Microbiology, which constitutes 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 grade-point average of at least 2.00. Of these 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 61:147 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. Interdisciplinary Ph.D. programs in genetics, immunology and molecular biology are 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, bocatalysts/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 their 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 Principles of Infectious Diseases arr.
61:112 Health Sciences Microbiology 4 s.h.
61:117 Survey of Immunology 3-4 s.h.
61:147 General Microbiology 5 s.h.
61:159 Pathogenic Bacteriology 5 s.h.
61:167 Survey of Immunology 3-4 s.h.
61:169 Principles of Microbial Diversity, Genetic and Metabolic Processes, and Disease 4 s.h.
61:177 Medical Microbiology 4 s.h.
Molecular Biology ● Medicine 443

Molecular Biology

Chair: Mark F. Stinski

Professors: Arthur Arnone (Biochemistry), Mario Ascoli (Pharmacology), Kevin Campbell (Physiology and Biophysics), Steven Clegg (Microbiology), John E. Donelson (Biochemistry), Michael Feiss (Microbiology), Alice Fulton (Biochemistry), Alan G. Goodridge (Biochemistry), E. Peter Greenberg (Microbiology), Gary Gussin (Biological Sciences), Jim Jung-Ching Lin (Biological Sciences), Robert E. Malone (Biological Sciences), William M. Nauseef (Internal Medicine), Stanley Pearlman (Pediatrics), Jeffrey E. Pessin (Physiology and Biophysics), Bryce V. Pippa (Biochemistry), Peter A. Rubenstein (Biochemistry), David R. Soil (Biological Sciences), George V. Stauffer (Microbiology), Mark F. Stinski (Microbiology), C. Martin Stoltzfaus (Microbiology), Michael Welsh (Internal Medicine), Charles T. Lutz (Pathology), Scott Moye-Rowley (Physiology and Biophysics), Scott Nagoshi (Biological Sciences), Wayne A. Johnson (Physiology and Biophysics), Gary Koretzky (Internal Medicine), Charles T. Lutz (Pathology), Scott Moye-Rowley (Physiology and Biophysics), Rodney Nagoshi (Biological Sciences), David Price (Biochemistry), Andrew Russo (Physiology and Biophysics), Deborah Segaloff (Physiology and Biophysics), Ming-Chi Shih (Biological Sciences), Lubomir P. Turek (Pathology), Daniel L. Weeks (Biochemistry), Marek Weld (Biochemistry), Assistant professors: Chi-Lien Cheng (Biological Sciences), Beverly Davidson (Internal Medicine), Toshinori Hoshi (Physiology and Biophysics), Wayne A. Johnson (Physiology and Biophysics), Bradley Jones (Microbiology), Carol D. Sigmund (Internal Medicine), Lois S. Weisman (Biochemistry)

Graduate Program

The Molecular Biology Program provides interdisciplinary training in the concepts and methodologies fundamental to the investigation of biological mechanisms at the molecular level. Faculty members are involved in a variety of research projects related to gene expression and regulation. 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 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 I 3 s.h.
142:210 Molecular Biology I 4 s.h.
142:215 Molecular Biology II 3 s.h.
142:270 Ethics and Responsible Conduct in Research 1 s.h.
142:290 Seminar in Molecular Biology 1 s.h.
142:305 Molecular Biology Research (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.

Admission

Individuals seeking application materials and information about graduate training in molecular biology should contact the Molecular Biology Program.
Financial Aid

Graduate students in the Molecular Biology 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, Physiology and Biophysics. Faculty laboratories and central research facilities available to students provide access to the most up-to-date research equipment.

Courses

142:210 Molecular Biology I 4 s.h.
Mechanism, regulation of RNA, DNA, protein biosynthesis in prokaryotes; emphasis on experimental methods in biochemical, genetic, recombinant DNA analysis of these processes. Prerequisites: 212.18, and 99:130 or equivalent.

142:215 Molecular Biology II 3 s.h.
Mechanism, regulation of RNA, DNA, protein biosynthesis in eukaryotes; emphasis on differences from prokaryotic organisms, experimental methods for analysis of these processes. Prerequisite: 214:152. 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, centrosome; Golgi apparatus, lysosomes, mitochondria, nucleus. Prerequisites: 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.
Concepts, developments in physiology and regulation of eukaryotic cell processes; emphasis on biochemical, biophysical aspects of cellular functions, including membrane processes, cell-cell recognition, adhesion, communication; cell-matrix interactions, intercellular signaling mechanisms; regulation of cell division. Prerequisite: 142:220. Same as 72:225.

142:270 Ethics and Responsible Conduct in Research 1 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, 148:270.

142:290 Seminar in Molecular Biology 1 s.h.
Research findings in molecular biology. May be repeated. Graduate standing in molecular biology or consent of instructor required.

142:301 Directed Study in Molecular Biology 1 s.h.
Consent of instructor required.

142:305 Molecular Biology Research 1 s.h.
Graduate standing in molecular biology and consent of instructor required.

142:405 Thesis 1 s.h.
Open only to advanced degree candidates in molecular biology.

NEUROLOGY

Head: Antonio R. Damasio
Professors: Harold P. Adams Jr., Adel Afifi (Pediatrics/Anatomy), James Bale (Pediatrics), William E. Bell (Pediatrics), Antonina R. Damasio, Hans Damasio, Robert E. Fellows (Physiology and Biophysics), Isidore Gebhart (Pharmacology), Carl V. Gisolfi (Exercise Science/Biophysics), Bruce J. Ganten (Otolaryngology), Gerald F. Gebhart (Pharmacology), Carl V. Gisolfi (Exercise Science/Biophysics), Isidore Gormezano (Psychology), Donald D. Heistad (Internal Medicine), Richard R. Prange (Speech Pathology and Audiology), Jean Y. Jew (Anatomy), Alan Kim Johnson (Psychology), Eugene Spaziani (Biological Sciences), Barbara A. Stay (Biological Sciences), William Talman (Neurology), Gary W. Van Hoesen (Anatomy), Edward A. Wasserman (Psychology), Terence H. Williams (Anatomy), George Winokur (Psychiatry), Chun-Fang Wu (Biological Sciences)

Associate professors: Mark Blumberg (Psychology), Martin D. Cassell (Anatomy), Kelly J. Cole (Exercise Science), Steve Green (Biological Sciences), Alan Kay (Biological Sciences), Nicholas J. Fantus (Anatomy), Andrew Russo (Physiology and Biophysics), Robert L. Schelper (Psychology), Irwin Shibata (Physiology and Biophysics), Daniel T. Tranel (Neurology), Ruth Wachtel (Anesthesiology), Rafiq Wazi (Psychiatry)

Assistant professors: Brett Adams (Physiology and Biophysics), Toshinori Hoshi (Physiology and Biophysics), Matthew Rizzo (Neurology), J. Rhead (Pediatrics), Matthew Rizzo (Neurology), John R. Rizzo (Neurology), Antoine Bechara, Christine Logan, Rina Schul, Katerina Seidler, Julie Suh

Neurology is the branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. Teaching and postgraduate training, carefully integrated with patient care, have long constituted a significant aspect of departmental activity; experience in clinical electrophysiology, pediatric neurology, and neuropathology is part of this training. The department also offers research opportunities in behavioral neurology to candidates for the Doctor of Philosophy in psychology. Investigative interests of the faculty center on behavioral neurology, electrophysiological correlates of central and peripheral nervous system disease, growth factors in the nervous system, control and regulation of autonomic functions, peripheral neuropathy, cerebrovascular disease, neuro-ophtalmology, movement disorders, neuro-otology, and pain management.

Courses

64:111 Clinical Neurology 2 s.h.
Ward teaching and bedside examinations in small groups.

64:100 Neurology Elective for Physician Assistant Students 1 s.h.

64:228 Introductory Neuropsychological Assessment 1 s.h.
Standard behavioral assessment procedures; administration of neuropsychological tests under staff supervision; preparation of integrated reports on collected data; involvement in research project.

64:239 Advanced Neuropsychological Assessment 1 s.h.
Continuation of 64:228.

64:302 Advanced Inpatient Neurology 4 s.h.

64:303 Advanced Outpatient Neurology 4 s.h.

64:304 Neurochemistry 1 s.h.

64:305 Behavioral Neurology and Language Disorders 1 s.h.
Behavioral impairment, aphasic disorders of patients with nervous disease; their significance for identifying presence, extent, locus of cerebral lesions.

64:306 Neurological Subinternship 8 s.h.

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 program’s curriculum 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 Neuroscience Program students 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.

Admission

Information about predoctoral and postdoctoral training opportunities in the neuroscience is available from the Neuroscience Program Office.

Financial Aid

Neuroscience graduate students 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.

Courses

132:180 Fundamental Neuroscience 3 s.h. Functioning of nervous systems at molecular, cellular levels; expressions of brain activity such as perception; experimental approaches of different disciplines, including neurophysiology, molecular neurobiology, neuroanatomy, developmental neurobiology; their contributions to field. Offered fall semesters. Same as 2:180.

132:181 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, 223M:25 or equivalent, and 29:12, or consent of instructor. Same as 2:181.


132:244 Behavioral Neuroscience 2 s.h. Basic principles of behavioral neuroscience, including motivation, conditioning, physiology of consummatory behaviors. Offered spring semesters. Consent of course director required. Same as 31:244, 71:244.

132:245 Developmental Neuroscience 2 s.h. Basic principles of developmental neurobiology, including neurogenesis, neuronal differentiation and proliferation, synaptogenesis. Offered fall semesters. Consent of instructor required. Same as 2:245, 60:245.


132:270 Ethics and Responsible Conduct in Research 1 s.h. Conducting and reporting research, peer review, mentoring and laboratory supervision, human and animal subjects, misconduct, conflict of interest. Same as 127:270, 142:270, 148:270.


NUCLEAR MEDICINE TECHNOLOGY

See “Division of Associated Medical Sciences.”

OBSTETRICS AND GYNECOLOGY

Head: Jennifer R. Niebyl
Professors: Barrie Anderson, Jo Ann Benda (Pathology), Frederick K. Chapler, Rudolph P. Galask (Microbiology), Susan R. Johnson, Jennifer R. Niebyl, Carl P. Weiner, Roger A. Williamson, Frank J. Zlatnik
Clinical professors: Robert M. Kretzschmar, David W. Wetch
Associate professors: Richard E. Buller, Lowell R. Hughes, Robert C. Reiter, Craig H. Syrop, Joel I. Sotosky, Bradley Van Voorhis
Associate professors (clinical): Noelle C. Bowdler, Jane Engelkling, Ann L. Steiner
Clinical associate professor: Charles W. Schauberger
Assistant professors: David C. Merrill, Ingrid E. Nyaag, Asha Rijphsinghani, Dale W. Stovall, Jerome Yankowitz
Assistant professors (clinical): Lisa Everson, Ann Lons

Programs

Course Work for M.D. Students

Courses in obstetrics and gynecology are designed to give M.D. students a comprehensive survey of reproductive medicine. This is done through a series of didactic lectures, inpatient and outpatient assignments, ward rounds, teaching seminars, and special elective courses.

The third-year clerkship (66:4 Clinical Obstetrics and Gynecology) gives students the core knowledge, skills, and attitudes needed to provide primary health care to female patients. The department offers fourth-year students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology. In addition to clerkships at The University of Iowa Hospitals and Clinics, these electives include a rotation at the Gundersen Clinic, La Crosse, Wisconsin, and other arranged off-campus courses.

Residency Program

The department offers a four-year residency. Upon completion, graduates are eligible for the written and oral examinations leading to certification by the American Board of Obstetrics and Gynecology.

Residents are assigned to the various divisions and clinical services of the department and care for both hospital inpatients and outpatients. Additional training is obtained in prenatal clinics in Waterloo, Des Moines, Muscatine, Clinton, and Davenport. During the final two years, residents spend time at Iowa Methodist Hospital and Broadlawns Medical Center in Des Moines, and at St. Luke’s Hospital in Davenport. They are trained in normal and abnormal obstetrics, gynecologic surgery, office gynecology, reproductive endocrinology, gynecologic oncology, family planning, and endoscopic procedures.
Courses

66:4 Clinical Obstetrics and Gynecology  arr.
Proficiency in special history taking, physical examination of obstetric and gynecologic patients, applying concepts of diagnostic techniques and therapy; focus on outpatient gynecology, family planning, techniques for early detection of gynecologic cancer; clerkship.

66:6 Advanced Obstetric Clerkship: Iowa City  arr.
Experience in evaluating new patients in high-risk obstetric clinic; continuing antepartum care; doing work up, ordering diagnostic studies, and following course of complicated patients admitted to obstetric ward; assisting in diagnostic, therapeutic procedures such as fetal heart rate testing, amniocentesis, ultrasonography, intravenous fetal transfusion.

66:9 Advanced Gynecologic Clerkship  arr.

66:10 Gynecologic Oncology  arr.

66:13 Reproductive Endocrinology Infertility  arr.


66:105 Obstetrics and Gynecology for Physician Assistant Students  4 s.h.
Experience to develop proficiency in special history taking and physical examinations for gynecologic patients; focus on outpatient gynecology, diagnostic techniques and therapy, family planning, techniques for early detection of gynecologic cancer.

66:110 Obstetrics for Physician Assistant Students  arr.
Physical examination of obstetric patients; concepts of diagnostic techniques and therapy; following course of patients, including labor, delivery, post partum care.

66:997 Research  arr.

66:998 Special Studies on Campus  arr.

66:999 Special Studies off Campus  arr.

OPHTHALMOLOGY

Head: Thomas A. Weingeist


Associate professors: Keith D. Carter, Randy H. Kardon, Alan E. Kimara, William D. Mathers, Edwin M. Stone, John E. Surphin

Assistant professors: H. Culver Boldt, A. Tim Johnson, Young Kwon, Mariannette J. Miller-Meeks

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, echnography, cornea and external diseases, vascular diseases, plastic surgery, contact lens and refraction 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 four years, culminating in qualification for the examination of the American Board of Ophthalmology.

Facilities

The department maintains research laboratories for tumor diagnosis, pathology, electroophysiology, pupillography, molecular biology, and vascular disease. Clinical facilities in ophthalmology are available at The University of Iowa Hospitals and Clinics in the Pomerantz Family Pavilion 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.

Courses

67:100 Elective in Ocular Pathology  4 s.h.
Ocular specimens, histologic studies; reference work, self assessment.

67:101 Elective in External Eye Disease  4 s.h.
Common diseases of eyelid, conjunctiva, cornea.

Visual, ocular motor dysfunction due to neurologic disease; patient work up, readings, neuro-ophthalmology rounds.

67:103 Elective in Pediatric Ophthalmology  arr.
Clinical workup of infants, children, common ocular diseases. Open only to students who do not intend to become ophthalmologists.

67:105 Introduction to Clinical Ophthalmology  arr.
Ocular history, visual acuity, intraocular pressure, extraocular muscles, papillary responses, slit lamp examination, fundus examination, common ocular diseases.

67:106 Ocular Genetics: Pediatric Ophthalmology  4 s.h.

Use of recombinant DNA, tissue culture, protein electrophoresis in study of inherited eye diseases. Consent of instructor required.

Experimental studies of the sensory visual system; emphasis on investigations into perimetry, motion processing and contrast sensitivity; basic and clinical topics. Open only to senior medical students.

67:998 Special Studies on Campus  arr.

67:999 Special Studies off Campus  arr.

ORTHOPEDIC SURGERY

Head: Reginald R. Cooper


Professor emeritus: Ignacio V. Ponseti

Clinical professor: Richard C. Johnston

Associate professors: Ernest Found, Charles Saltzman, David T. Tannenbaum

Clinical assistant professors: Donald W. Blair, Scott Kelley, Dennis McGowan, Mark Mysnyk, James Pahl

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

Tissue transplant, radioative isotopes, metabolic bone disease: skin, bone, and cartilage transplantation, skeletal physiology; qualitative and quantitative aspects of histology, mineral composition, and bone density; effect of in vivo and in vitro metabolic bone disease, and exercise
Facilities
The department is housed in the John Pappajohn Pavilion of The University of Iowa Hospitals and Clinics and has an active service in the Veterans Affairs Medical Center. Facilities include 48 orthopedic beds, 5 outpatient clinics, inpatient and outpatient operating rooms, a specialty library, a specialty radiology unit, and physical therapy and rehabilitation facilities.

Specialty clinics deal with disorders such as scoliosis, club feet, congenital dislocated hip, neuromuscular disease, metabolic disease, amputation, neoplasm, trauma, and neck, back, hip, foot, knee, and hand problems.

Physicians in the outpatient clinic see approximately 165 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.

76:2 Clinical Orthopedics arr.
76:102 Orthopedics Elective for Physician Assistant Students arr.
76:201 Advanced Clinical Orthopedics arr.
76:202 Musculoskeletal Trauma arr.
76:203 Surgical Care of the Hand arr.
76:204 Orthopedic Surgery, Des Moines VAMC arr.
76:998 Special Studies on Campus arr.
76:999 Special Studies off Campus arr.

OTOLARYNGOLOGY—HEAD AND NECK SURGERY

Head: Bruce J. Gantz
Professors emeriti: Janusz Bardach, Brian F. McCabe, William H. Olin, D.C. Spriestersbach
Associate professors: John W. Canady, Henry T. Hoffman, Michael P. Karmel, Timothy M. McCulloch
Associate professor emerita: Jeanne K. Smith
Assistant professors: Michael R. Arcuri, Phyllis Chang, Gerry F. Funk, Scott M. Graham, Steven H. Green, Jay Rubinstein
Clinical assistant professor: Peter L. Alt, Roger Simpson
Clinical instructors: Phillip C. Lee, Russell E. Schultz

The department provides one of the oldest and largest otolaryngology-head and neck surgery training programs in the world. Currently it has a full-time faculty of 20, 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, nasopharysngology, facial nerve conduction, microvascular reconstructive surgery, anatomy of the 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 and/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

68:3 Clinical Otolaryngology 2 s.h.
68:100 Clinical Internship in Otolaryngology arr.
68:104 Basic Principles of Facial Plastic and Reconstructive Surgery 4 s.h.
68:106 Pediatric Otolaryngology arr.
68:108 Otolaryngology Elective for Physician Assistant Students arr.
68:109 Otolaryngology Elective for Physician Assistant Studentsarr.
68:110 Clinical Otolaryngology, Des Moines, VAMC arr.
68:118 Clinical Otolaryngology at the Des Moines Veterans Administration Medical Center. Open only to senior medical students.
68:199 Basic Otolaryngologic Science arr.
68:402 Fixed Prosthesis in Maxillofacial Rehabilitation arr.
68:403 Restorative Dentistry in Maxillofacial Rehabilitation arr.
68:404 Dental Management in Irradiated Patients arr.
68:430 Maxillofacial Prosthetics arr.
68:435 Restorative Dentistry in Maxillofacial Surgery arr.
68:999 Special Studies off Campus arr.

PATHOLOGY

Head: Richard G. Lynch
Professors emeriti: Thomas H. Kent, George D. Penick, Earl F. Rose, Frederic W. Stumler
Clinical professor: David L. Witte (Laboratory Control, Ltd., Ottumwa, Iowa)
Assistant professors: Tom Haugen, Stephen Raab (clinical); John Turner
Clinical assistant professors: Dorrin L. Buck (St. Luke’s Hospital, Cedar Rapids, Iowa), Bradley Randall (Sinus Falls, S. D.)
Associate: James O’Connor
Lecturers: Rutiaane Hyduke, Marian Schwabbaaufer
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 clinical laboratory sciences; 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 Clinical Laboratory Sciences

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 students in the medical sciences, the other for medical technologists who want to advance their training, usually by specialization in an area of laboratory medicine.

M.S. students participate in teaching, patient care, and research through the instructional programs of the department, the service 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 grade-point average of at least 3.00 in science courses, a Graduate Record Examination (GRE) General Test combined verbal and quantitative score above 1200, and a personal interview.

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, neuropathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, and transfusion medicine. There is also 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 hematopathology, immunopathology, transfusion medicine, clinical microbiology, cytopathology, neuropathology, and surgical pathology for physicians who have completed residency training in pathology. These fellowships consist of one to two years of diagnostic work and up to two years of laboratory research.

The department 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 45,560 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 spectroscopy, nuclear magnetic resonance, and laboratory animal care.

Courses

69:000 Cooperative Education Internship 0 s.h.
69:104 Principles of Human Pathology 1 s.h.
69:118 Phlebotomy for Clinical Laboratory Sciences 1 s.h.
69:119 Clinical Laboratory Instruments and Techniques 3 s.h.
69:120 General Clinical Laboratory Concepts and Techniques 4-6 s.h.
69:121 Immunology for Clinical Laboratory Science 2 s.h.
69:122 Chemistry for Clinical Laboratory Science 4 s.h.
69:123 Immunohematology for Clinical Laboratory Science 3 s.h.
69:124 Hematology for Clinical Laboratory Science 4 s.h.
69:125 Microbiology for Clinical Laboratory Science 4 s.h.
69:126 Clinical Chemistry and Body Fluids 4 s.h.
69:127 Clinical Laboratory Medicine for Physician Assistant Students 1 s.h.
69:130 Clinical Laboratory Medicine 1 s.h.
69:131 Clinical Laboratory Science Seminar 1-2 s.h.
69:132 Clinical Immunology and Molecular Pathology 4 s.h.
69:133 Human Pathology 4 s.h.
69:134 Clinical Research for Clinical Laboratory Science 4 s.h.
69:135 Individual Study in Clinical Laboratory Medicine 4 s.h.
69:136 Independent Study in Immunology 1 s.h.
69:137 Applied Clinical Laboratory Techniques 4 s.h.
69:139 Clinical Laboratory Medicine 4 s.h.
69:140 Medical Cytogenetics 3 s.h.
69:141 Medical Cytogenetics Laboratory 3 s.h.
69:142 Medical Cytogenetics Seminar 1 s.h.
69:143 Medical Cytogenetics 1 s.h.
69:144 General and Systemic Pathology 4 s.h.
69:145 General and Systemic Pathology 4 s.h.
69:146 General and Systemic Pathology 4 s.h.
69:147 General and Systemic Pathology 4 s.h.
69:148 General and Systemic Pathology 4 s.h.
69:149 General and Systemic Pathology 4 s.h.
69:245 Hemopathology Clerkship
69:246 Surgical Pathology Clerkship
69:247 Blood Bank Clerkship
69:249 Clinical Immunology and Immunopathology: Laboratory and Clinical Corrons
Experience in Immunopathology lab, allergy immunology clinics; conferences, follow up of lab requests, abnormalities. Open only to fourth year medical students. Same as 78:253.
69:288 Cellular and Molecular Biology of Cancer 3 s.h.
Biological features, population characteristics, cell biology, molecular mechanisms; chemical, viral carcinogenesis; Immunology of neoplasia, with emphasis on in-depth analysis, supporting literature. Consent of instructor required. Prerequisite: strong basic science background. Same as 77:288.
69:290 Medical Student Fellowships in Pathology arr.
Frost hand experience in autopsy, surgical and clinical pathology, teaching, and research to further understanding of disease mechanisms, normal and pathologic anatomy, and laboratory use.
69:291 Warner Fellowship in Experimental Pathology
One-year, full-time membership in established research laboratory in the Department of Pathology or collaborating laboratory. Open only to medical students.
69:998 Special Studies on Campus
69:999 Special Studies off Campus

**PEDIATRICS**

Head: Frank H. Morris Jr.

Professors emeriti: Lloyd J. Filer, Samuel J. Fomon, John C. MacQueen, Charles H. Read, Vinton N. Rowley, Theodore Searle, Gerald Solomon


Associate professor emeriti: Dorothy A. Ehmke

Associate professors (clinical): Brenda Cruikshank, Mary Jones, Jill Morris, Kathleen Sanders, Jeffrey Smith

Adjunct associate professor: Gary Sasso


Assistant professors (clinical): Mary Graeff, Kim Keppler, Deborah Lin-Dyken, Ellen Link, Linda Muir, Clinton Pietz, Craig Porter, Andrea Sherbondy


The Department of Pediatrics has designed its educational program to provide a solid foundation for students and those seeking training in the complex problems of diseases and critical illness. There are daily rounds involving general pediatrics and all subspecialties.

Affiliated programs in the Divisions of Maternal and Child Health-Iowa State Department of Health, Regional Child Health Specialty Clinics, University Hospital School, Blank Memorial Children’s Hospital (Des Moines), and the Kewok County Medical Clinic (Sigourney) add depth to the educational program in community pediatrics and primary care.

Didactic lectures and simulated physical examination of the newborn, toddler, and older child 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.

For the junior and senior medical student, the inpatient service offers an opportunity for training in the complex problems of diseases and critical illness. There are daily rounds involving general pediatrics and all subspecialties.

Challenging and interesting cases are presented to the staff for diagnosis and treatment.

Outpatient experience, available in the junior clerkship and 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 has approximately 130 beds, and more than 40,000 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**

70:02 Clinical Pediatrics
Principles, practices of health maintenance and treatment of acute, chronic illnesses in children; emphasis on diagnosis and evaluation, nutrition, behavior problems, disorders affecting children; patient care, daily rounds, ward work. Open only to third-year medical students.

70:12 Nutrition, Growth, Care, and Developmental GI
arr.

70:16 Pediatric Hematology
arr.

70:17 Pediatric Neurology
arr.

70:19 Pediatric Cardiology
arr.

70:20 The Physically Impaired Child and Young Adult
arr.

70:22 Child Abuse
arr.

70:23 Infant and Child Development
arr.

70:24 Clinical Management of Developmental Disabilities
arr.

70:25 Intermediate and Neonatal Intensive Care Unit Nurses
arr.

Experience in caring for ill neonates, proficiency in using diagnostic tests, procedures; responsibility for care of several infants; reference and literature review, conferences, teaching, clinical rounds.
70:28 Pediatric Inpatient Care arr.
Experience on pediatric inpatient team caring for patients ranging from infants through adolescents; evaluation, formulation of differential diagnoses, diagnostic workups, appropriate therapy programs. Open only to senior medical students.

70:29 Pediatric Intensive Care Unit 4 s.h.
Direct care of critically ill children, under supervision of pediatric residents and staff; participation in educational activities and formal clinical rounds. Open only to senior medical students.

70:30 Pediatric Genetics, Cytogenetics, and Neonatal Disorders arr.
Participation in diagnostic, therapeutic problems; techniques for evaluation, appropriate counseling in genetic cases; conferences.

70:32 Pediatric Nephrology/Collagen Vascular Disease 4 s.h.
Work in renal clinic; collagen vascular clinic; inpatient service and outpatient consultations; conferences.

70:33 Pediatric Gastroenterology arr.
Diagnosis, management, treatment of diseases of gastrointestinal tract, liver, pancreas in children; ward rounds, consultations, clinics, diagnostic procedures; conferences.

70:39 Pediatric Infectious Diseases arr.

70:40 Infectious Disease Consults 4 s.h.
Experience in general pediatric practice; routine well-child care, outpatient management of ill children; otologic examinations, assessment of the ill child, interpretation of lab values. Open only to senior medical students.

70:42 Newborn Intensive Care Unit, Raymond Blank Memorial Hospital arr.
Work in a 36 bed unit; well-staffed, well-equipped Level III NICU.

70:43 Pediatric Allergy arr.
Experience in taking historical data for diagnosis of out-patients and inpatients, performing, interpreting pulmonary function, skin tests; appropriate disease management.

70:50 Pediatric Bone Marrow Transplant Service 4 sch.
Hematologic support, infectious disease management of pediatric bone marrow transplant patients; consultation, care, follow-up.

70:53 Outpatient Subsociety Rotation 4 s.h.

70:54 Alaska Native Health Service 4 s.h.
Work on inpatient and out-patient clinics with acutely or chronically ill patients and with well children.

70:102 Pediatrics Elective for Physician Assistant Students arr.

70:104 Pediatric Elective (Bone Marrow Transplant) for Physician Assistant Students arr.
Hematologic support, infectious disease management of pediatric bone marrow transplant patients; consultation, care, follow-up.

70:106 Pediatric Elective (Cardiology) for Physician Assistant Students arr.
Participation in inpatient, outpatient clinical activities; observation of cardiac catheterization, echocardiography; skill development in cardiac auscultation, EKG, chest X ray interpretation; emphasis on the physical diagnosis, management of congenital and acquired heart disease in children.

70:110 Medical Genetics 2 s.h.
Genetic structure and function, basis genetics concepts, application to problems in human disease. Open only to medical students. Offered last six weeks of fall semester.

70:150 Medical Cytogenetics 3 s.h.
Human chromosome structure, morphology; methods, mechanisms of preparative techniques; nature, mechanisms of chromosome abnormalities; cytogenetics of prenatal, cancer, toxicology testing. Prerequisites: cell or molecular biology, genetics, biochemistry, or consent of instructor. Same as 69:150.

70:151 Medical Cytogenetics Laboratory 2 s.h.
Methods, mechanisms of cytogenetics lab procedures, including short- and long term cultures, chromosome banding and special staining methods, photomicroscopy, case analysis and interpretation. Corequisites: 70:150. Same as 69:151.

70:152 Medical Cytogenetics Seminar Same as 69:152

70:155 Clinical Medical Cytogenetics arr.
Same as 69:155.

70:161 Human Genetics 2 s.h.
Genetic concepts, their relation to human research; emphasis on quantitative genetic approaches to cardiovascular disease, human gene mapping and its Implications. Offered spring semesters of odd years. Prerequisite: undergraduate genetics.

70:201 Primary Care in Pediatrics for the Nurse Practitioner II 6 s.h.
Development of advanced clinical judgment through advanced knowledge and skill in managing common pediatric illnesses, problems; classroom and clinical components. Prerequisite: 92:219. Same as 90:220.

Work in pediatric psychology learning disability clinic; training, experience in assessment, interview, research. Consent of instructor required. Same as TP-207.

70:249 Advanced Practicum in Child and Adolescent Personality Assessment 3 s.h.
Work in pediatric psychology clinic; training, experience in assessment, interpreting, psychological report writing; critique of personality instruments, text in personality assessment for children.

70:250 Social Psychology of Disability 3 s.h.
Research seminar; mental/physical disability from individual, societal perspective; emphasis on clarifying research and theoretical strategies in psychology of disability. Open only to medical students. Consent of instructor required. Same as TP-210.

70:251 Clinical Pediatric Neuropsychology arr.
Learning and behavior disorders resulting from central nervous system dysfunction; clinical experience in assessment of cognitive, behavioral patterns. Consent of instructor required.

70:252 Assessment of Attention Deficit Disorder 3 s.h.
Participation in clinical, research, didactic work in evaluating children with attention deficit disorder. Prerequisite: experience in intellectual assessment of children.

70:253 Assessment of Behavior Disorders arr.
Experience in diagnostic, behavioral assessments of children with conduct disorders.

70:254 Practicum: Psychological Services to Pediatric Hematology/Oncology and Hemophilia arr.
Psychological, educational issues for children with malignancies, their families; potential learning problems resulting from disease or toxic therapies; psychological issues in pediatric hemophlic care. Prerequisites: course work in intellectual evaluation of children and psychological testing with children.

70:300 Pediatric Independent Study 4 s.h.

70:555 Pediatrics for Physician Assistant Students 4 s.h.

70:653 Adult and Pediatric Nephrology and Hypertension arr.
Same as 78:653.

70:662 Medical and Pediatric Endocrinology arr.
Same as 78:662.

70:998 Special Studies on Campus arr.

70:999 Special Studies off Campus arr.

PHARMACOLOGY
Head: G. F. Gebhart

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 already has met them satisfactorily.

71:203 Pharmacology Research 1 s.h.
71:204 Pharmacology Seminar 1 s.h.
78:380 Clinical Pharmacology and Therapeutics Lecture Series 2 s.h.

The trainee must audit Pharmacology for Health Sciences (71:105 or 71:111) and take additional courses approved by his or her mentor.

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.
71:190-191 Pharmacology and Toxicology for Health Sciences I-II 8 s.h.
71:203 Pharmacology Research 1 s.h.
71:204 Pharmacology Seminar 1 s.h.
71:209 Receptors and Signal Transduction 3 s.h.
72:150 Intermediate Physiology 4 s.h.
99:120/130 Biochemistry and Molecular Biology I-II 8 s.h.

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 prerequisite to 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 faculty committee, 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.
Philosophical, experimental approaches to drug design; emphasis on concepts, tools of biological research, chemobiodynamics, receptor theory. Offered fall semesters. Consent of instructor required.

71:105 Pharmacology for Health Sciences: Medical 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 99:163, 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.

71:120 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. Prerequisites: 72:150 and 99:164, or consent of instructor.

71:130 Intermediate Pharmacology 3 s.h.
Principles; action, absorption, disposition, metabolism, excretion, toxicity of classes of drugs. Prerequisites: undergraduate biochemistry and physiolog, or consent of instructor.

71:132 Intermediate Pharmacology 3 s.h.
College of Nursing enrollment required. Prerequisites: undergraduate biochemistry and physiology.

71:135 Principles of Drug Action 2 s.h.
Sites, regulation of drug action, cellular specializations, enzymes, membrane transport, receptors as targets of drug action, signal transduction mechanisms, quantification of drug action. Offered fall semesters. Consent of instructor required.

71:140 Statistics for Pharmacology 3 s.h.
Analysis, interpretation of data, focus on experimental design, appropriate texts for data analysis, data collection and statistical analyses using the computer. Offered summer sessions.

71:190 Pharmacology and Toxicology for Health Sciences I 4 s.h.
Principles of pharmacology, toxicology, drug and toxic mechanisms; systemic and organ specific toxic responses. Open only to third-year pharmacy students and to graduate students with consent of instructor. Offered fall semesters.

71:191 Pharmacology and Toxicology for Health Sciences II 4 s.h.
Continuation of 71:190. Open only to third-year pharmacy students and to graduate students with consent of instructor. Offered spring semesters.

71:201 Pharmacology for Graduate Students 6 s.h.
Consent of department head required.

71:203 Pharmacology Research 1 s.h.
Consent of department head required.

71:204 Pharmacology Seminar 1 s.h.
Consent of department head required.

71:205 Advanced Cardiovascular Pharmacology 2 s.h.
Cardiovascular physiology and pharmacology; processes underlying hemodynamic disturbances associated with hypertension, diabetes, atherosclerosis. Offered fall semesters. Consent of instructor required.

71:207 Neuropharmacology 3 s.h.
Pharmacological mechanisms that modify neurotransmitter function; actions on cell ultrastucture, 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 steroid 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 s.h.
Consent of department head required.

71:215 Topics in Neuropharmacology 1 s.h.
Recent advances in neurotransmission, developmental neurobiology, neuroendocrinology, related neuroscience. Consent of instructor required.

71:225 Topics in Molecular Pharmacology 1 s.h.
Recent advances; receptor, postreceptor events in stimulus coupling. 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, cellular, developmental, behavioral neuroscience; Offered fall semesters. Consent of course director required. Same as 31:244, 132:244.

71:255 Topics in Cardiovascular Pharmacology 1 s.h.
Recent advances in cardiovascular pharmacology, including hypertension and central control of circulation. Offered fall and spring semesters. Consent of instructor required.

71:272 Seminar in Cellular and Molecular Biology 1 s.h.
Same as 60:272, 72:272, 99:272.

71:380 Clinical Pharmacology and Therapeutics Lecture Series 2 s.h.
Pharmacological approaches to treatment of disease in humans. 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, photooxidation, lipid peroxidation, nitric oxide, metal catalysis; role of radicals in inflammation, reperfusion injury, and DNA damage and mutation. Offered full semesters. Consent of instructor required. Same as 77:545.

71:546 Topics in Free Radical Biology Medicine 1 s.h.
Recent advances in free radical chemistry, antioxidation, photooxidation, lipid peroxidation, nitric oxide, metal catalysis and role of radicals in inflammation, reperfusion injury, and DNA damage and mutation. Offered spring semesters. Consent of instructor required. Same as 77:546.

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. Giosfol (Exercise Science), Jeffrey Pesin, Michael J. Welsh (Internal Medicine), Charles C. Wunder

Professors emeritus: G. Edgar Folk Jr.

Associate professors: Wayne Johnson, Gary Korefzky (Internal Medicine), Scott Moe-Roylew, Andrew Russo, Thomas J. Schmidt, Deborah Segaloff, Erwin F. Shibata

Associate professors emeriti: Charles J. Imig, Gordon W. Searle

Assistant professors: Brett Adams, Nikolari Artemyev, Toshinori Hoshi, Curt Sigmund (Internal Medicine)

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 interdisciplinary graduate programs, including 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. A summer research program provides research opportunities for selected undergraduates.

Graduate Program

The graduate program in physiology and biophysics provides students with fundamental knowledge of life processes at molecular, cellular, and integrative levels of biological function. It also imparts knowledge of modern research skills applicable to contemporary problems.

Principle areas of interest represented in the department are cell biology, genetics, 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 neurophysiology. Students elect courses in other departments appropriate to their educational and research objectives.

After successful completion of 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 an overall science grade-point average of at least 3.00, coupled with a combined verbal and quantitative score above 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, mathematical, 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. Department faculty members also occupy laboratory facilities in the Eckstein Medical Research Building. In addition to specialized equipment in faculty research laboratories, the department has an extensive local area network with direct access to the University network, the Internet, and the multimedia education facility. The department also provides equipment for fluorescence microscopy, isotope analysis, 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 to others with consent of course director. Prerequisites: grade of C– or higher in 2:2 or 2:10, 4:7, and 4:8.

72:150 Intermediate Physiology 4 s.h.
Principles of organ system and cell function. Offered spring semesters. Consent of course director required. Prerequisites: grade of C– or higher in 2:10, 4:121, and 4:122.

72:152 Mammalian Physiology 4 s.h.
Principles of organ system and cell function. Open only to dental students. Offered spring semesters. Consent of course director required.

72:154 Biomedical Engineering Physiology 4 s.h.
Principles of organ system and cell function. Open only to biomedical engineering students. Offered spring semesters. Consent of course director required.

72:164 Human Physiology for Physician Assistant 4 s.h.
Principles of organ system and 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.

72:209 Receptors and Signal Transduction 3 s.h.
Major receptor families: G protein-coupled receptors, ligand regulated transmembrane enzymes, ligand regulated ion channels, the steroid receptor superfamily; emphasis on description, interpretation of specific experiments, experimental strategies that underlie current research. 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. Graduate standing in physiology and biophysics or 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.

72:225 Cell Biology II 3 s.h.
Organization, function of the eukaryotic cell. Offered spring semesters. Consent of course director required. Same as 142:225.

72:234 Medical Neuroscience 4 s.h.
Principles of neurophysiology, neuroanatomy, 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; lipid-protein interaction, membrane synthesis, endocytosis and fusion, active and coupled transport, membrane fluidity, hormone receptors. Offered even years. Consent of course director required.

72:243 Biophysics of Excitable Membranes 2 s.h.
Basics of 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.

72:245 Developmental Neurobiology 2 s.h.
Major developmental systems, their application in neurobiology; neurogenesis, synapse formation, axonal guidance, the cellular/molecular aspects of neural differentiation, literature-based approach. Consent of course director required.

72:262 Environmental Physiology 2 s.h.
Physiological responses, including acclimatization of mammals to extreme heat, cold, high and low pressure, space, stress, laboratory emphasis on telemetry, meteorological measurements, activity recording. Consent of course director required. Prerequisite: 72:150 or equivalent.

72:265 Neuroscience Seminar 0-1 s.h.

72:270 Responsible Conduct of Research 1 s.h.
Ethical issues including misconduct and fraud, proper handling of data, responsible authorship, conflict of interest, research on animals and human subjects. Consent of instructor required.

72:272 Seminar in Cellular and Molecular Biology 1 s.h.
Same as 60:272, 71:272, 99:272.

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: 72:150 or 72:212, and 99:130. Same as 72:274.

72:290 Special Topics arr.
Consent of graduate studies director 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 AND ENVIRONMENTAL HEALTH**

Interim head: Leon F. Burmeister
Associate professor emeritus: Franklin Kilpatrick
Adjunct associate professors: Mark A. Albanese, Roger D. Tracy
Assistant professors: James R. Cerhan, Jeffrey D. Dawson, Maro Schotman, Mustafa I. Selim
Assistant professor emerita: Lois Bouware
Adjunct assistant professors: Stephen V. Arndt, Russell W. Currier, Kristi J. Ferguson, Linda G. Snetselaar
Associate: Nancy A. Lynch
Graduate degrees: M.S., Ph.D. in Preventive Medicine and Environmental Health

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.

Departmental research and teaching activities are conducted within three divisions: biostatistics, epidemiology, and occupational and environmental health. Faculty members of the biostatistics division work closely with both clinical and basic science investigators throughout the health center in design and
subsequent analysis of research projects. They also work independently to study problems of statistical theory and to develop new analytic methods. Their primary research interests are general statistics, statistical computing, design of sample surveys, repeated measures analysis, design and analysis of clinical trials, categorical data analysis, quantitative epidemiologic methods, and survival analysis.

The epidemiology faculty focuses its teaching and research on health care organization and delivery, risk factors for disease in the general population, behavioral factors in disease, and the establishment and evaluation of disease control measures in the community. Its research emphases include epidemiology of communication disorders, pharmacoepidemiology, cancer epidemiology, adverse reproductive outcome epidemiology, anatomic pathology, cardiovascular disease, nutrition, sleep disorders, smoking cessation, epidemiology of reproduction, dental epidemiology, neuroepidemiology, meta-analysis, intervention trials, international health, and effects of aging.

Faculty members in the occupational and environmental health division are concerned with assessment of risk factors in the physical environment and their relationship to disease—particularly health problems of agricultural and industrial workers. Their primary research interests are zoonoses, health of agricultural confinement workers, occupational medicine, indoor air pollution, public health laboratories, general pollution problems, environmental engineering, water quality, occupationally related lung disease, industrial hygiene, respiratory problems in agriculture, analytical toxicology, acid rain, industrial and agricultural immunotoxicology, pulmonary and dermal toxicology, aerosol physics, and injury epidemiology.

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, industrial hygiene, 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 M.S. subprograms require that students complete an in-depth preceptorship under the direction of a departmental faculty member. The industrial hygiene program requires 43 semester hours; all other programs require a minimum of 38 semester hours of course work. In addition, students must maintain a grade-point average of at least 3.00. Students who receive 7 or more semester hours of C + grades or lower 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 semester-hour 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 multivariable 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.
or
96:118 Pathophysiology 3 s.h.
22S:153-154 Mathematical Statistics I-II 6 s.h.
63:163 Introduction to the Design of Sample Surveys 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health 3 s.h.
63:276 Biostatistical Methods II 4 s.h.

Students must choose at least 7 additional semester hours from the following.

22S:161 Application of Multivariate Statistical Techniques 3 s.h.
22S: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 for 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 4 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health 3 s.h.

(Prerequisite: 63:203) Statistical Methods in Epidemiology 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
69:133 Introduction to Human Pathology 3 s.h.
or
96:118/119 Pathophysiology/Neurological and Behavioral Pathology 5 s.h.

Students must choose 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 4 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 1-3 s.h.
63:269 Cardiovascular Disease Epidemiology 3 s.h.
63:279 Cancer Epidemiology and Control 3 s.h.
63:289 Intervention and Clinical Trials 3 s.h.
63:291 Pharmacoepidemiology 3 s.h.

Industrial Hygiene

This program is designed to prepare graduate students for professional careers in industrial hygiene as well as the broader field of occupational and environmental health. Career opportunities include work in departments of health and safety in industry; consulting; academic institutions; and local, state, and federal health agencies. The program was fully accredited by ABET/ABIH in 1995 for a six-year period.
A baccalaureate degree, at least two semesters of chemistry, one semester of physics, and mathematics through calculus are required. Course work in the biological sciences, microbiology, and computer programming is desirable.

**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 3 s.h.
or
96:118/119 Pathophysiology/Neurological and Behavioral Pathology 5 s.h.
63:191 Occupational Health 3 s.h.
63:192 Occupational Safety 3 s.h.
63:231-232-233 Industrial Hygiene I-II-III 9 s.h.
63:260 Environmental Toxicology 3 s.h.
63:280 Occupational and Environmental Health Seminar 0-1 s.h.

One of these:
63:201 Research arr.
63:206 Preceptorship 3 s.h.
63:300 Thesis 6 s.h.

Students also must choose a total of 9 semester hours of elective courses (offered by preventive medicine and/or other departments) from the following topic areas: other environmental topics (e.g., environmental sample analysis, air, water, waste disposal), other occupational services (e.g., ergonomics, health physics, labor law), and management topics (e.g., writing, psychology, economics).

**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 3 s.h.
or
96:118/119 Pathophysiology/Neurological and Behavioral Pathology 5 s.h.
63:191 Occupational Health 3 s.h.
63:192 Occupational Safety 3 s.h.
63:231-232-233 Industrial Hygiene I-II-III 9 s.h.
63:260 Environmental Toxicology 3 s.h.
63:280 Occupational and Environmental Health Seminar 0-1 s.h.

Students must select courses from at least two divisions in the following list.

**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.
63:273 Research Data Management 3 s.h.
63:191 Occupational Health 3 s.h.
63:209 Rural Health and Agricultural Medicine 3 s.h.
63:260 Environmental Toxicology 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 1-3 s.h.

**Joint Master's Degrees**

A joint master's option exists between the Graduate Program in Urban and Regional Planning (see the College of Liberal Arts section of the Catalog) 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.

**Doctor of Philosophy**

The Ph.D. program is available with emphases in biostatistics, epidemiology, industrial hygiene, and occupational and environmental health. Semester-hour requirements for the Ph.D. subprograms are 76-84 semester hours for biostatistics, 73 for epidemiology, 72 for industrial hygiene, 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 grade-point average of at least 3.00. Students who earn a grade of C+ or less 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.

**Biosocial Sciences**

The biosocial sciences Ph.D. program is designed to prepare students for professional and academic careers in biosocial sciences. 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.
63:133 Introduction to Human Pathology 3 s.h.
or
96:118 Pathophysiology 3 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 4 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 1-3 s.h.
63:269 Cardiovascular Disease Epidemiology 3 s.h.
63:279 Cancer Epidemiology and Control 3 s.h.
63:289 Intervention and Clinical Trials 3 s.h.
63:291 Pharmacoepidemiology 3 s.h.

ADDITIONAL DIVISIONAL REQUIREMENTS

22S:153-154 Mathematical Statistics I-II 6 s.h.
22S:255 Linear Models 4 s.h.
22S:161 Application of Multivariate Statistical Techniques 4 s.h.
or
22S:256 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 s.h.
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.

22S:167 Introduction to Stochastic Processes 3 s.h.
22S:230 Nonparametrics Statistical Analysis 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health 3 s.h.
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.

Industrial Hygiene

This program prepares students for careers as scientists, teachers, and industrial hygiene practitioners in academic or research settings, private industry, or government health agencies.

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. Undergraduate preparation must include at least two semesters of chemistry, two semesters of physics, and mathematics through calculus. Courses in the biological sciences, microbiology, and computer programming are desirable.

DEPARTMENTAL REQUIREMENTS

Core:
63:158 Principles of Epidemiology 4 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

Other:
69:133 Introduction to Human Pathology 3 s.h.
or
96:118/119 Pathophysiology/Neurological and Behavioral Pathology 5 s.h.

DEPARTMENTAL CORE-PART A

63:258 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 3 s.h.
or
96:118/119 Pathophysiology/Neurological and Behavioral Pathology 5 s.h.

DEPARTMENTAL CORE-PART B

Students must choose 6 semester hours 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 II 3 s.h.
63:273 Research Data Management 3 s.h.

Epidemiology:
63:250 Hospital Epidemiology 2 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 1-3 s.h.

ADDITIONAL REQUIRED COURSES

63:191 Occupational Health 3 s.h.
63:192 Occupational Safety 3 s.h.
63:203 Preceptorship 3 s.h.
63:209 Rural Health and Agricultural Medicine 3 s.h.
63:231-232-233 Industrial Hygiene I-II-III 3 s.h.
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.
63:201 Research 6 s.h.
or
63:300 Thesis 10-16 s.h.

Students must select a total of 9 semester hours of elective courses (offered by preventive medicine and/or other departments) from the following areas: other environmental topics (e.g., environmental sample analysis, air, water, waste disposal), other occupational services (e.g., ergonomics, health physics, labor law), and management topics (e.g., writing, psychology, economics).

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. 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 3 s.h.
or
96:118/119 Pathophysiology/Neurological and Behavioral Pathology 5 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 II 3 s.h.
63:273 Research Data Management 3 s.h.

Epidemiology:
63:256 Hospital Epidemiology 2 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 1-3 s.h.

OTHER REQUIREMENTS

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 3-6 s.h.
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 8-12 s.h.

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.

Admission

Minimum grade-point average requirements for admission are 2.70 for the master’s program and 3.00 for the Ph.D. program. Applicants must have taken the Graduate Record Examination (GRE) General Test. The minimum recommended score for most students is a combined verbal and quantitative score of 1050. Also, applicants whose native language is not English must 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 emphasis 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 résumé.

ADMISSION DEADLINES FOR M.S. PROGRAMS

Biostatistics: January 15 (early) and March 15 (late) for fall; October 1 for spring; entering in 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. Entering in spring or summer is not encouraged.
Occupational and Environmental 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.
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.

ADMISSION DEADLINES FOR PH.D. PROGRAMS

Biostatistics: January 15 (early) and March 15 (late) for fall; October 1 for spring; entering in spring is not encouraged.
Epidemiology: April 1 (early) and July 1 (late—applies only to U.S. citizens) for fall; October 1 for spring. Entering in spring or summer is not encouraged.
Occupational and Environmental Health, and Industrial Hygiene: 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 opportunities for funded postdoctoral fellowships exist for further scientific training in disciplines represented in the department. There are programs in mental health, aging, pharmacoepidemiology, outcomes research, and injury prevention. Funded positions sponsored by federal agencies are available for U.S. citizens only.

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 Lipid Research Center; the Women’s Health Initiative; 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 Trials Data Management Center, which serves the statistical design, data management, and analysis needs of a variety of multicenter clinical trials, including studies of new treatments for Alzheimer’s disease and acute ischemic stroke.

All departmental programs are enhanced through affiliations with the University Hygienic Laboratory, the Environmental Health Service, the Graduate Program in Hospital and Health Administration, the Center for International Rural and Environmental Health, the Health Services Research Center, the Department of Internal Medicine’s division of clinical epidemiology, the Environmental Health Sciences Research Center, the Hazardous Substance Research Center, the Center for Global and Regional Environmental Research, and the Environmental Engineering and Science Program in the Department of Civil and Environmental Engineering.

Courses

63:000 Cooperative Education Internship 0 s.h.
63:105 Preventive Medicine for Physician Assistant Students 1 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology II 3 s.h.
63:256 Hospital Epidemiology 2 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 1-3 s.h.
63:111 International Health 1, 3 s.h.
63:158 Principles of Epidemiology 3, 4 s.h.
63:161 Introduction to Biostatistics 3 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.
63:202 Environmental Health 3 s.h.
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 8-12 s.h.

Worksafe Iowa; the Biostatistical Consulting Service, the Department of Civil and Environmental Engineering.

Academic and research programs and activities include the State Health Registry of Iowa, which records data on all cases of cancer that occur in residents of Iowa; the Lipid Research Center; the Women’s Health Initiative; 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 Trials Data Management Center, which serves the statistical design, data management, and analysis needs of a variety of multicenter clinical trials, including studies of new treatments for Alzheimer’s disease and acute ischemic stroke.

All departmental programs are enhanced through affiliations with the University Hygienic Laboratory, the Environmental Health Service, the Graduate Program in Hospital and Health Administration, the Center for International Rural and Environmental Health, the Health Services Research Center, the Department of Internal Medicine’s division of clinical epidemiology, the Environmental Health Sciences Research Center, the Hazardous Substance Research Center, the Center for Global and Regional Environmental Research, and the Environmental Engineering and Science Program in the Department of Civil and Environmental Engineering.

Courses

63:000 Cooperative Education Internship 0 s.h.
63:105 Preventive Medicine for Physician Assistant Students 1 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology II 3 s.h.
63:256 Hospital Epidemiology 2 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 1-3 s.h.
63:111 International Health 1, 3 s.h.
63:158 Principles of Epidemiology 3, 4 s.h.
63:161 Introduction to Biostatistics 3 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.
63:202 Environmental Health 3 s.h.
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 8-12 s.h.
63:171 Problems in Preventive Medicine
arr.
Didactic material in preventive medicine not organized as a formal course; may include tutorial, seminar, faculty directed independent work (e.g., literature search project, short research project).

63:172 Independent Study and Research in Preventive Medicine
arr.
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; multistage sampling; double sampling; sampling frame construction; panel studies; problems due to non response. Offered spring semesters of even years. Prerequisite: 63:163.

63:176 Biostatistical Methods I 4 s.h.
Problem-oriented probability distributions, moments, estimation, parametric and nonparametric inference for one-sample and two sample problems, analysis of frequency data, linear regression, correlation analysis; emphasis on using computers. Offered fall semesters. Consent of instructor required. Prerequisite: two semesters of calculus.

63:191 Occupational Health 3 s.h.
Principles, practice of occupational medicine, industrial hygiene and safety, occupational health management. Offered fall semesters.

63:192 Occupational Safety 3 s.h.
Principles and practices of occupational safety in agriculture, industry. Offered fall semesters.

63:195 Analytical Toxicology Lecture 3 s.h.
Separation, identification, quantitative determination of toxic chemicals and metabolites in biological, environmental matrices; basic principles and applications of modern instrumental methods of analysis, chemical separation, concentration techniques, quality control, good laboratory practice. Offered fall semesters. Consent of instructor required.

63:196 Analytical Toxicology Lab 3 s.h.
Hands-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 instruments, application of quality control/quality assurance protocols, computerized data obtained from analytical instruments. Offered spring semesters. Prerequisite: 63:195.

63:198 Solid and Hazardous Wastes 3 s.h.
Sources, characteristics, collection and disposal of solid, hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Prerequisites: 53:150 or 63:202 or consent of instructor. Same as 53:158.

63:200 Introduction to Health Care Organization 3 s.h.
Basic organizational arrangements of medical services in the United States; roles, financing, organization, 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
arr.
For students engaged in research that may lead to a dissertation.

63:202 Environmental Health 3 s.h.
Assessment of contemporary human health issues associated with biological, chemical, physical factors of environment; critical review of environmental factors that affect health, public policies governing recognition, intervention, and control. Offered fall semesters.

63:203 Preceptorship in Preventive Medicine and Environmental Health
arr.
individual work experience using knowledge, skill acquired in classroom; arranged in conjunction with ongoing activities in the department, the College of Medicine, or off-campus in governmental agency or private industry.

63:209 Rural Health and Agricultural Medicine 3 s.h.
Clinical orientation of specific health problems of rural residents, agricultural workers; rural health care delivery, socioeconomic issues in agriculture and their effects on health and safety of agricultural population; occupational health problems, general environmental health hazards in rural areas. Offered spring semesters. Prerequisite: enrollment in medical curriculum or 63:158 or consent of instructor.

63:221 Theory of Biostatistics I 4 s.h.

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: 228:153, 228:154, and 63:221.

63:231 Industrial Hygiene I 3 s.h.
Principles, with emphasis on recognition of chemical health hazards, ph-y-real health hazards at work. Offered fall semesters. Pre- or corequisite: 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 63:231 or consent of instructor.

63:241 Statistical Methods in Epidemiology 3 s.h.

63:242 Statistical Methods in Epidemiology II 3 s.h.
Nonparametrics, semiparametric methods for survival data; methods of computing indirectly standardized rates and standardization mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: 63:162.

63:243 Cohort Data Analysis 1 s.h.
Methods of comparing 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: 63:162 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, development of health promotion/modification programs, strategic targeting, focus on social marketing strategies in public and private health sectors related to medical management, outcomes research. Offered spring semesters. Graduate standing required. Same as 80:211.

63:251 Injury Epidemiology 3 s.h.
How epidemiology can be applied to injury prevention and control; epidemiology literature, specific methodologic problems involved in epidemiology of injuries, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisites: 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. Prerequisites: 63:202 or consent of instructor. Same as 53:204.

63:255 Epidemiology of Occupational Injuries 3 s.h.
In depth review of epidemiologic literature regarding injuries, their prevention. Prerequisite: 63:158 or consent of instructor. Offered spring semesters of even years.

63:256 Hospital Epidemiology 2 s.h.
Epidemiological methods applied to positive, negative features of hospital patient care; classic use of epidemiologic concepts in description, investigation, control of hospital-acquired diseases, infections, drug reactions, accidents, excess costs; collection, use of hospital data for patient care evaluation 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; epidemiology and control of infectious diseases, case studies of specific infectious diseases important to public health organized by mode of disease transmission. Offered spring semesters of even years. Prerequisite: 63:158 or equivalent.

63:258 Advanced Field Methods in Epidemiology 3 s.h.
Epidemiological study design and analysis; bias, confounding, effect modification; matching; vital statistics; descriptive studies; case-control studies; cohort studies; intervention studies; measurement principles; data sources, questionnaire design, conduct of surveys, relation to disease classification; assessment of acute, communicable, 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 1-3 s.h.
Related groups of chronic diseases (e.g., those related to aging, reproduction, environment, nutrition); underlying etiologic themes. Offered fall semesters of even years. Prerequisite: 63:158 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, mycoxins, 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 inference 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: 228:153, 228:154, and 63:258 or equivalents. Same as 53:220.

63:262 Analysis of Categorical Data 3 s.h.
Log-linear models as basis for study of categorical data; models for discrete data, distribution theory, maximum likelihood, and weighted least squares estimation for cross-classified data, tests of fit, model selection. Offered spring semesters. Prerequisites: 228:155 and 228:194; or consent of instructor. Same as 228:220.

63:263 Statistical Genetics 3 s.h.
Introduction to the mathematical foundations of human genetics, with emphasis on use of likelihood methods and genetic modeling; mathematical and philosophical differences between pure likelihood methods and classical (frequentist) methods for comparing hypotheses. Offered fall semesters of even years. Prerequisites: 228:153 and 228:154.

63:264 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 model methodology for binary and Poisson responses, logit and mean score models for repeated categorical data, nonparametrics methods; emphasis on use of statistical software packages for mainframe, personal computer. Offered spring semesters of odd years. Prerequisites: 228:154 and 63:276.

63:265 Advanced Topics in Genetic Data Analysis 3 s.h.
Data analytic problems that arise in genetic investigations of complex disorders in humans, including segregation and linkage analysis; epidemiological and biostatistical perspectives; hands-on experience in genetic data analysis; for students with background in epidemiology or biostatistics. Offered fall semesters of odd years. Prerequisites: 63:254 and 63:263.

63:267 Outcomes Research 2 h.
Conceptual underpinnings and development of valid outcomes data, use of outcomes data in clinical care and population-based care management; intricacies of research methodology for health-related assessment of quality of life. Offered spring semesters. Prerequisite: introductory research methods course (e.g., 63:158).

Preventive Medicine and Environmental Health • Medicine 457
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 odd 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 even years. Prerequisite: 63:260 or consent of instructor.

63:273 Research Data Management 3 s.h.
Skill in managing research data, especially large databases; form design, data editing, system utilities, data management computer systems, statistical packages. Offered fall semesters. Prerequisite: 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 computers. 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: 63:158 and 63:161; or 69:103, or 96:118 and 96:119.

63:280 Occupational and Environmental Health Seminar O-1 s.h.
Contemporary topics in occupational health, agricultural and comparative medicine, environmental health.

63:289 Intervention and Clinical Trials 3 s.h.
Methodologic introduction to the rationale, design, conduct, analysis, and interpretation of clinical trials; variety of clinical trial designs, with examples from current or past trials; emphasis on biostatistical methods, including sample size determination. Offered spring semesters of even years. Prerequisites: 63:158 and 63:161, or equivalents.

63:291Pharmacoepidemiology 73:372 Special Studies on Campus arr.
Drug approval process, methods for identification and attribution of adverse drug events, current understanding of the epidemiology of adverse drug events; study designs, data sources for pharmacoepidemiology, pharmacoepidemiology, offered fall semesters. Prerequisite: 63:158.


63:996 Occupational Medicine Arr.
Experience in a variety of settings, including heavy industry, community occupational clinics, environmental projects, agriculture; four-weeks developed to match students’ interests, goals; on-campus time at Institute for Rural and Environmental Health, off-campus locations include industrial, community hospital sites in Iowa. Open only to medical students.

63:998 Special Studies on Campus Arr.
On-campus clerkship using community services in primary care practice; how public health and community health agencies operate in context 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 counties, clerkships in community health programs on Indian reservations or in Appalachian or urban centers, assignment to governmental agencies or legislative bodies. Open only to medical students.

PSYCHIATRY

Head: Robert G. Robinson
Professors: Arnold Andersen, Nancy Andreassen, Donald Black, Kathleen Buckwalter, Remi Cadoret, William Correll, Raymond Crowe, Michael Garvey, Roger Kathol, Michael Miller, Russell Noyes, Paul Perry, Bruce Pohl, William Yates

Associate professors: Brian Cook, Michael Flauam, Gary Gaffney, Samuel Kuperman, Joseph Piven, Victor Swayze, Verónica Veland, Rafal Wawrz

Associate professor emeriti: Richard Finn

Adjunct associate professor: Bruce Alexander

Clinical associate professor: James C. N. Brown

Assistant professors: Wayne Bowera, Beth Cizadlo, Gerard Clancy, Eric Devor, Craig Holt, Harry Magee, Jeffrey Max, Delwyn Miller, Peggy Nopulos, Andrew Pitts, Barbara Rohland, Scott Stuart, Susan Schultz, Beth Troutman, Catherine Woodman

Adjunct assistant professors: Martha Christiansen, Sam Cochran, Cheryl Hetherington, Greg Lambert

Clinical assistant professors: James Beeghly, Kathryn Currie, Gertrude Doughten, Fred Dunning, Paul Leffelhoff, Paul Penningroth, James Pullen, Larry Richards, Mamneth Kumar, Robert Wesner, Alan Whitten

Associate: Douglas Langbehn

Adjunct instructors: Nancee Blum, Stephen Osecki, Nancy Richards, Beth Van Zee, Elizabeth Walsh

The Department of Psychiatry teaches medical students and trains resident physicians for academic and clinical careers in psychiatry. It instructs medical students principally during their third year. It offers no degree program.

The department maintains a four-year training program approved by the Residency Review Committee of the American Medical Association. Training experiences are available at 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 Medical and Classification Center 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, neuroimaging, neuropathology, neupyschiatry, and psychosocial aspects of behavior.

Many research opportunities in psychiatry are available to students and residents, and the basic science areas of neurochemistry, neuropathology, and electrophysiology offer additional opportunities. The clinical areas of psychiatry, child psychiatry, and psychotherapy also offer opportunities to a limited number of students for research and further study.

Courses

73:100 Psychiatry for Physician Assistant Students arr.
73:107 Psychosocial Interventions in Psychiatry arr.
Experience, training in psychosocial treatment for psychiatric disorders (e.g., depression, anxiety, eating disorders); experience with inpatient, outpatient psychotherapy; emphasis on short-term interventions in group or individual format.

Quantitative genetic methods; genetic epidemiology of mental illness; segregation analysis; linkage analysis; power analysis; ascertainment.

73:109 Molecular Psychiatry Arr.
Molecular biology in studies of mental illness; cloning and DNA sequencing; mutation detection; gene mapping; linking analysis; gene structure and function; laboratory.

73:230 Research in Psychiatry Arr.
Biological or psychological problems related to psychiatry. Open only 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, manic-depression, anxiety neurosis, alcoholism, personality disorder. Same as 63:255.

For Medical Students

The following courses are open only to medical students.

73.5 Clinical Psychiatry 6 s.h.

73.31 General Hospital Psychiatry Arr.
Supervised evaluation of patients at General Hospital Psychiatry, University Hospitals and Clinics.

73.33 Adult Psychiatry, Pappajohn Pavilion Arr.

73.35 Child Psychiatry, Pappajohn Pavilion Arr.

73.42 Correctional Psychiatry, Iowa Medical and Classification Center, Oakdale Arr.

73.185 Research Psychiatry Arr.
Experience, training in practical application of scientific methodology; work with research project at Psychiatric Service or affiliated, cooperating research centers. Open only to senior medical students.

73.999 Special Studies off Campus Arr.

RADIATION BIOLOGY

Director: James W. Osborne
Professors: David H. Hussey, Larry W. Oberley, James W. Osborne
Professor emeritus: Frank Hsieh-Fu Cheng
Associate professors: Richard D. Hichwa, Michael E. Robbins

Adjunct associate professor: Garry 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 physical, chemical, and biological effects of radiation and the theory and widespread application of radioisotope methodology.

Another focus of the program is free radical biology. Free radicals, which are generated in great number by radiation, play a major role in the interaction of radiation with biological systems. Free radicals are of great interest to basic researchers and clinicians because of their role in a variety of diseases and pathological states, including cancer. The program stresses...
the importance of all of these areas to scientific research, clinical medicine, and the general public’s health.

Undergraduate Study

Three courses, 77:103 Introduction to Radiation Biology and 77:107-108 Special Topics: Advanced Undergraduates, are open to undergraduate students in liberal arts or professional colleges. Students who want an overview of the biological effects of radiation, including the role of free radicals, will find 77:103 especially appropriate. These courses also are of interest to students who plan to enter medicine, nuclear medicine technology, environmental health, or related programs.

Graduate Programs

The M.S. program in radiation biology provides a good background for those who choose to enter the Ph.D. program with emphasis in radiation biology, free radical biology, or related fields. Students may qualify for the M.S. degree with or without a thesis. The Ph.D. program is open to graduate students with a background in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering. After completing the introductory course (77:103) students typically concentrate on a particular aspect of the field. Some students elect to focus on radiation biology, while others choose to emphasize free radical biology. In addition to formal lectures and some structured laboratory exercises, plans of study for radiation biology students involve small-group conferences, discussions, and seminars. Students must have at least one semester of experience as a teaching assistant and at least one semester as a research assistant. No registration is required and no academic credit is given for serving as a teaching assistant.

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 Biology Program has two X-ray generators and other radiation sources, including a kilo-Curie Cs-137 irradiator. Students and staff also have access to other radiation sources, such as the CO-60 gamma source and linear accelerators in the Department of Radiology’s division of radiation oncology. The program has a number of radiation detectors and counters, including gamma and liquid scintillation counters and a small animal whole-body counter. The program also has ultraviolet/visible spectrophotometers; various types of equipment for densitometry, chromatography, and electrophoresis; molecular biology equipment, including thermal cyclers and 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 Radiation Biology 4 s.h.
Characteristics and biological effects of ionizing radiations. Offered fall semesters. Consent of instructor required.

77:107 Special Topics: Advanced Undergraduates arr.
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 Medical Physics 4 s.h.
Characteristics of X-ray machines, nuclear accelerators, teletherapy devices; properties of X-rays and gamma rays, their interaction with matter; radiation exposure, depth dose measurements; radiation therapy. Offered fall semesters of even years. Prerequisite: 8 semester hours of physics or consent of instructor. Same as 29:240.

77:222 Free Radicals in Biology and Medicine 4 s.h.
Chemistry of free radicals, antioxidants, antioxidant enzymes — their structure, function, regulation; targets of free radicals — lipids, proteins, DNA; free radicals in health and disease. Offered spring semesters of odd years. Prerequisite: 4:121 or 99:120.

77:223 Cellular and Molecular Radiobiology 4 s.h.
Recent advances in the understanding of radiation-induced changes in cellular, molecular aspects of normal cell function; application in selective modulation of normal and malignant tissue responses to anticancer therapies, especially radiation therapy. Offered fall semesters of odd years. Prerequisite: 77:103 or consent of instructor.

77:224 Radiosistopes in Biological Research 1-3 s.h.
Uses of radiosistopes in biological systems, including patients; emphasis on beta assay, especially liquid scintillation counting and on assay of gamma emitters. Offered spring semesters of even years. Consent of instructor required.

77:288 Cellular and Molecular Biology of Cancer 3 s.h.
Fundamental aspects of oncology at the cellular and molecular levels; mechanisms of cancer initiation and progression, oncogene action, DNA damage and repair, carcinogenesis by radiation, chemicals, viruses; tumor immunology, anticancer therapies. Offered spring semesters of odd years. Consent of instructor required. Prerequisite: strong basic science background. Same as 69:288.

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. Offered fall semesters. Consent of instructor required. Same as 71:345.

77:546 Topics in Free Radical Biology and Medicine 1 s.h.
Offered spring semesters. Same as 71:546.

77:547 Topics in Radiation and Cancer Biology 1 s.h.
New literature on the biological effects of radiation and cancer biology. Offered fall semesters. Consent of instructor required.

77:548 Topics in Radiation and Cancer Biology 1 s.h.
Offered spring semesters.

RADIOLOGY

Head: Michael W. Vanness


Associate Professors: Daniel Kahn, Simon Kao, Mary H. Kathol, Elvira V. Lang, Mark T. Madsen, Karin Rezai, Michael Robbins, Brad H. Thompson, B-Chen Wen

Adjoint associate professor: Gary B. Buettner


Adjunct associate professor: Barry R. Buettner


Associate: Brian Mullan, Gary Schweiger, G. Leonard Watkins

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 and nuclear medicine techniques; aims, techniques of radiation therapy.

74:2 Introduction to Radiation Therapy 4 s.h.
Radiation 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.
Individualized instruction in basic methods and procedures of interventional radiology; limited hands-on experience; ongoing investigative procedures and research projects.

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 pharmacology, patient care, radiation protection, math and statistics, radiation physics, anatomy and physiology, radiocommunity 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. 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, radiobiology, radiopharmaceuticals, radiation biology, administration and management, film processing, radiomicroscopy laboratory introduction. Open only to nuclear medicine technology students.
A majority of the courses involve surgery, thoracic and cardiovascular surgery, endocrine disease, transplantation, plastic surgery, and neurosurgery. The thoracic-cardiovascular and neurological surgeons have particular expertise in clinical management of the spectrum of diseases in their specialties.

Facilities

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

75:100 Emergency Room Elective for Physician Assistant Students
75:110 Surgery Elective for Physician Assistant Students
75:111 Surgery Elective for Physician Assistant Students (Transplant/Organ Retrieval)
75:112 Surgery Elective for Physician Assistant Students (Burn Unit)
75:153 Clinical Course for Physician Assistant Students (Anesthesia)
75:161 Instrumentation in Perfusion Technology
75:162 Pathophysiology of Perfusion Technology
75:163 Clinical Experience I
75:164 Clinical Experience II
75:165 Clinical Experience III
75:166 Clinical Experience IV
75:167 Perfusion Seminar
75:168 Research in Perfusion
75:169 Clinical Experience V
75:170 Principle and Practice of Perfusion Technology
75:171 Devices in Perfusion Technology
75:172 Advanced Clinical Surgery
75:173 Veterans Administration Medical Center Surgical Intensive Care
75:220 Emergency Room: St. Lukes, Cedar Rapids
75:221 Emergency Room on Campus
75:222 Emergency Room off Campus
75:223 Burn Therapy
75:224 Pediatric Surgery
75:225 Transplantation Surgery
75:226 Clinical Experience in Perfusion Technology
75:227 Clinical Neuroscience
75:230 Clinical Vascular Surgery  
Diagnosis, treatment of peripheral vascular disease; noninvasive diagnosis of arterial, venous problems; vascular problems in outpatient clinic, inpatient service; time in operating room, rounds with residents, conferences. Consent of instructor required. Prerequisite: 75:5.

75:231 Research in Vascular Surgery  
Clinical or laboratory oriented projects. Consent of instructor required. Prerequisite: 75:5.

75:232 Clinical Cardiothoracic Surgery  
Concentration on cardiac or thoracic surgery; conferences; internship responsibilities; research. Consent of instructor required. Prerequisite: 75:5.

75:233 Research in Cardiothoracic Surgery  
Short- or long-term project; may involve clinical material or laboratory research; completion of publishable manuscript. Consent of instructor required. Prerequisite: 75:5.

75:234 Externship at the VA in Des Moines  
Consent of instructor required. Prerequisite: 75:5.

75:235 General Surgery Iowa Methodist Medical Center  
4 s.h. Consent of instructor required. Prerequisite: 75:5.

75:555 General Surgery for Physician Assistant Students  
Consent of instructor required. Prerequisite: 75:5.

79:998 Special Study on Campus  
Consent of instructor required. Prerequisite: 75:5.

79:999 Special Studies off Campus  
Consent of instructor required. Prerequisite: 75:5.

UROLOGY

Head: Richard D. Williams  
Associate professors: James F. Donovan Jr., Robert Dreicer, Karl J. Kreder  
Associate professor emeritus: William W. Bonney  
Assistant professors: Jay L. Sandlow, 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 50:165 Foundations of Clinical Practice IV (ICD), 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

79:104 Clinical Urology  
2 s.h. Work in urology unit, clinic; responsibility for patient care, working with residents.

79:108 Advanced Clerkship in Urology  
4 s.h. Experience as integral member of urological staff, junior resident level.

79:109 Advanced Clerkship in Pediatric Urology  
4 s.h. Experience in evaluation and pre-, post-, intraoperative management of patients.

79:110 Individual Study and Research  
Preclinical or clinical projects; may include research presentation, collaboration on a publication.

79:115 Urological Oncology  
Experience in diagnosis, management of genitourinary neoplasms; participation in oncology protocols; may include collaboration on a publication.

79:116 Male Endocrinology and Reproduction  
Current status of male endocrinology, laboratory methods of measuring essential parameters, assessment and management of clinical problems; time devoted to evaluation and treatment of male infertility.

79:119 Urodynamics  
4 s.h. Clinical experience in voiding dysfunction, incontinence, urodynamics; full participation in all patient evaluation, urodynamic laboratory activities.

79:120 Urology Elective for Physician Assistant Students  
Taking a urologic history, performing physical examinations, interpreting laboratory studies and data.

79:999 Special Study Off Campus  
Individually arranged by students with the departmental approval.
Researchers and participants in a College of Nursing childhood study

Acting dean: Geraldene Felton
Associate dean, undergraduate studies and community affairs: Eleanor McClelland
Director, continuing nursing education: Kathleen Kelly
Interim director, information and communication technologies: Joann Eland
Director, nursing research development and utilization: Toni Tripp-Reimer
Director, student services: Laraine Carmichael
Professors: Kathleen Buckwalter, Gloria Bulechek, M. Patricia Donahue, Geraldene Felton, Rita Frantz, Meridean L. Maas, Joanne McCloskey, Barbara Thomas, Toni Tripp-Reimer
Professors emeritae: Myrtle Aydelotte, Eva Erickson, Rosemary McKeighen, Hope Solomons
Associate professors: Mary Blegen, Toni Clew, Martha Craft-Rosenberg, Connie Delaney, Joann Eland, Michele Eliason, Rose Marie Friedrich, Orpha Glick, Laura Hart, Keela Herr, Diane Huber, Marion Johnson, Kathleen Kelly, Leslie Marshall, Eleanor McClelland, Paula Mohily, Sandra Powell, Jean Reese, Elizabeth Swanson, Kay Weiler, Janet Williams

Associate professors emeritae: Geraldine Busse, Phyllis Franck, Mildred Freer, Marjorie Gould, Nancy Jordinson, Jean Lakin, Marjorie Lyford, Anna E. Overland, Etta H. Rasmussen
Assistant professors: Mary Aquilina, Mary Kathleen Clark, Perle Slavik Cowen, Carolyn Crowell, Ken Culp, Janice Denehy, Wayne Ellis, Louise Kruse, Sonja Lively, Ann Marie McCarthy, Frances Milde, Sue Moorhead, Lavonne Ruther, Beverly Saboe, Annette Scheffel, Mary Stewart-Dedmon
Assistant professors emeritae: Joella Antes, Merle Heick, Mary Rock
Lecturers: John Aker, Jill Asprey, Pam Ballard, Teresa Boese, Veronica Brighten, Lily Chen, Patricia Clinton, Karen Griffith, Anne Hartson, Todd Ingram, Deborah Jensen, Jone Johnson, Louise Jones, Jean King, Susan Lehmann, Ncollet Markovetz, Sheryl Miller, Patricia Nelson, Anita Nicholson, Margaret Rankin, Bridgid Ruden, Joanne Tigges, Connie Trowbridge, Pamela Willard
Undergraduate degree: B.S.N.
Graduate degrees: M.S.N., 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, interests, 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 Bachelor 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 72 semester hours of liberal arts General Education courses and supportive prenursing courses, and 56 semester hours of course work in the nursing major. Students can expect to complete the program in four or four-and-a-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 required 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 careers 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 hospitals. Students have clinical experiences that are selected from more than 60 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-a-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 Warburg 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, and Waterloo.

Completion of the transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for transfers are the same as for all other College of Nursing applicants. Prospective transfer students who want more information about this plan should contact the cooperating institution of their choice.

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.

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 18 semester hours of acceptable course work in aging studies are awarded a certificate of completion by the University. 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. 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.

Preparation for the NCLEX-RN Exam

A required pregraduation assessment test is provided, at no expense to students, during their fourth semester. The test is designed to assess nursing students’ essential nursing knowledge and application in various clinical situations and to identify students’ specific strengths and weaknesses, providing a sense of direction for further study and a means for setting priorities. 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.

Following the fifth semester, the college offers, at no expense to students, a course that provides concentrated, extensive review in preparation for the NCLEX-RN examination.

Registered Nurses

The R.N.-B.S.N. progression 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 three nonclinical nursing courses. R.N.’s may study on campus and at 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 are eligible for membership in the state and national associations of nursing students, but they also have their own organization, The University of Iowa Association of Nursing Students (UIANS), which provides opportunities for professional growth and development in nursing. UIANS representatives are members of The University of Iowa Student Association (UISA), and there is a UIANS 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, health insurance, professional liability insurance, and transportation once they are enrolled in clinical nursing courses.

Mandatory Health Insurance
All students in the College of Nursing must show annual verification that they have obtained and currently hold health insurance for health professions students, underwritten by Blue Cross & Blue Shield of Iowa, or the equivalent. The policy must provide $250,000 lifetime benefit covering required immunizations, hospitalization, surgery, maternity, emergency illness or injury, and well-baby care (to age 7). Entering students in the College of Nursing are provided information about this requirement.

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 grade-point average of at least 2.50 on a 4.00 scale.

Applicants whose first language is not English are required to present a score of at least 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.

Core Performance Standards
Applicants to the College of Nursing are expected to be capable of completing the entire nursing curriculum and of earning a Bachelor of Science in Nursing. The nursing curriculum requires demonstrated proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, College of Nursing students must meet the following performance standards.

- Possess and use critical thinking skills sufficient for clinical judgment (e.g., identify cause-effect relationships in clinical situations, develop nursing care plans)
- Demonstrate interpersonal abilities sufficient for interaction with individuals, families, and groups from a variety of social, emotional, cultural, and intellectual backgrounds (e.g., establish rapport with patients, clients, colleagues)
- Possess and use communication skills sufficient for interacting with others (e.g., explain treatment procedures, initiate health teaching, observe patient/client responses, document and interpret nursing actions and patient/client responses)
- Administer cardiopulmonary procedures and other clinical procedures necessary for nursing care; calibrate and use equipment, position patients and clients
- Possess the tactile abilities (with or without an assistive device) sufficient for performing physical assessment (e.g., perform palpation functions of physical exam and those related to nursing interventions)

The examples above are not all-inclusive.

Applicants who may not meet these standards are encouraged to contact the associate dean for undergraduate studies for a personal interview.

Preclinical Background
In addition to the biological and behavioral science courses required for admission to the college, students must satisfy the following requirements before beginning clinical nursing course work.

Rhetoric: 8 semester hours (maybe 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Organic biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>Animal biology</td>
<td>4</td>
</tr>
<tr>
<td>Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>Human anatomy</td>
<td>4</td>
</tr>
<tr>
<td>Human physiology</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Human development and behavior</td>
<td>3</td>
</tr>
</tbody>
</table>

Specialization in child health nursing, adult health nursing, community health nursing, or gerontological nursing, and a role preparation area (subtrack) in advanced practice, administration, or education. In the advanced practice role, options include clinical nurse specialist, pediatric nurse practitioner, gerontological nurse practitioner, or anesthesia nursing. In the nursing administration role, options include nurse manager or the M.B.A./M.S.N. joint degree program. Some subtracks may require special acceptance procedures.

Two to three 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, or hospital and health administration. Two new areas of concentration are offered in genetic counseling and 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.S.N. and Anesthesia Nursing programs require a minimum of six semesters of full-time study. Students must maintain a grade-point average of at least 2.50 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 (6 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 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 practice nursing, 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 advanced 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 6-9 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 63:150 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 serves 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.

**Joint Master’s Program with Business Administration**

The joint M.B.A./M.S.N. program is designed for students with previous clinical and administrative experience. Applicants to this program must be accepted for graduate study in both programs. The joint program requires a total of 67 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 grade-point average of at least 2.50 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 applicants must provide or have fulfilled the following:

- 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., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country;
the legal requirements for the practice of nursing in Iowa; 
an undergraduate grade-point average of 3.00 or higher or a demonstrated ability to do graduate work for regular admission; 
completion of health screening requirements and verification of health insurance; 
current written recommendations from three persons familiar with the applicant’s 
competence in the practice of nursing and potential for leadership and scholarship; 
a short goal statement; and 
successful completion of an upper-level (or equivalent) statistics course within five years preceding admission.

Students whose first language is not English 
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. PNP, GNP, and anesthesia programs admit students for initial enrollment in fall semester only. The anesthesia program’s application deadline is December 1.

All Graduate College regulations 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 advisor. Course work taken ten years or more before the final examination must be updated, according to University policy.

Doctor of Philosophy

The Ph.D. in nursing program prepares scientists to conduct research in nursing, extends the knowledge base relevant to nursing, and contributes to the body of knowledge in the discipline of nursing. Study requires expertise in clinical nursing and competence in research that relates to the practice of nursing and the delivery of health care.

The curriculum has two focal areas from which students choose: nursing in aging and nursing administration. Graduates of the program aspire to careers as researchers, college and university faculty members, consultants, and as leaders in the nursing profession, in health policy-making agencies, and in health care delivery systems.

Degree Requirements

All 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 I-II 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.
Cognate minor courses 9 s.h.
Cognate research sequence: research methods and statistics 9 s.h.
96:490-491 Research Practicum 0 s.h.

In addition, candidates must take the appropriate seminars and practicums for their focus area (total of 12 semester hours).

Aging Focus

96:410 Nursing Research of Biological Phenomena and Interventions for the Elderly 3 s.h.
96:420 Geriatric Mental Health Research 3 s.h.
96:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.
96:440 Research Utilization Residency in Care of the Elderly 3 s.h.

Nursing Administration Focus

96:450 Research Seminar in Nursing Administration I: Organizational Systems Concepts 3 s.h.
96:451 Research Seminar in Nursing Administration II: Health Care System Concepts 3 s.h.
96:460 Innovations in Nursing Management 3 s.h.
96:480 Residency in Nursing Service Administration 3 s.h.

Comprehensive Exam, Dissertation

All students must complete a written comprehensive examination. Candidates earn 12 semester hours for work on the dissertation by completing 96:497 Dissertation Research Seminar: Research Application and Advanced Design, a dissertation prospectus, the dissertation, and an oral defense.

Admission Requirements

Students applying to the Ph.D. program must provide or have fulfilled 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;
- a minimum of one graduate-level, 3-semester-hour course in research and inferential statistics;
- a two- or 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.

Students whose first language is not English must earn a score of at least 550 on the Test of English as a Foreign Language (TOEFL).

Professional Improvement

Some registered nurses may wish to take University of Iowa course work to fulfill the professional or personal improvement objectives. 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 fall semester admission, December 1 for spring semester admission, and May 1 for summer session admission.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master’s or doctoral candidate, P.I. students are required to follow the application procedure described in the preceding section if they seek admission as master’s or doctoral degree candidates. Only 6 semester hours or two required nursing core courses taken under the professional improvement status may be used to fulfill the M.S.N. requirements. P.I. 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 classrooms, laboratories, and Learning Resource Services, which includes a technology laboratory. Additional classrooms and laboratories are located throughout the building. Conference rooms, student lounges, and meeting rooms are conveniently located. Research and computer facilities in the building provide direct access to the University’s computing facilities and to college-owned microcomputers.
Courses

Primarily for Undergraduates

96:30 Human Development and Behavior 3 s.h.
Normal developmental transitions experienced by individuals and family systems throughout the lifespan, including physical, cognitive, and social-emotional development. Prerequisite: 31:1 or 513:1. Same as 153:30.

96:31 Adult Development and Aging 1 s.h.
Physical, cognitive, personality development in the adult. emphasis on the aging process. Prerequisites: 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, Aldus 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.
Nurse domain of the curriculum; professional nursing practice, nursing science, the nurse practice environment, the importance of research, computer technology.

96:118 Pathophysiology 3 s.h.
Abnormal physiological health transitions; disorders in cells, organs; systems involved in vegetative functioning and biological defense of the human organism. Prerequisites: one course each in anatomy, chemistry, microbiology, physics, physiology, and psychology; or consent of instructor.

96:119 Neurological and Behavioral Pathology 1-2 s.h.
Abnormal physiological and psychological health transitions that have well documented physiological and/or behavioral bases; focus on neurological and behavioral disorders. Prere or corequisite: 96:118.

96:120 Pathology 4 s.h.
Common physiological, psychological disorders of humans; emphasis on changes that occur during illness, methods used to correct them. Offered only by Guided Correspondence Study. Prerequisite: one course each in anatomy, chemistry, microbiology, physics, physiology, and psychology.

96:121 Foundations of Nursing Practice 4, 7 s.h.
Assessment and diagnosis phases of the nursing process; health pattern and physical assessment; communication skills, critical thinking, research-based nursing practice. Prerequisite for 7 s.h.: admission to College of Nursing, 96:90 or consent of instructor. Prerequisites for 4 s.h. (R.N. students): admission to College of Nursing, R.N. licensure in Iowa, 96:30, 96:90, 96:118, 96:119 or consent of instructor, and requirements of declared articulation option.

96:122 Clinical and Technological Nursing Skills I 2 s.h.
Scientific principles, applications of basic clinical and technological nursing skills. Open only to College of Nursing students. Corequisite: 96:121.

96:123 Clinical and Technological Nursing Skills II 2 s.h.
Scientific principles, applications of complex clinical and technological nursing skills. Prerequisites: 96:121 and 96:122 with a grade of C or higher. Corequisite: 96:132.

96:132 Nursing and Health Transitions I 7 s.h.
Physiological and psychosocial concepts, including nursing diagnoses, interventions, outcomes for clients experiencing rapid transition to health status; opportunity to practice the professional nurse role in an acute care setting. Prerequisites: 96:118, 96:119, 96:121, and 96:122. Pre- or corequisites: 96:119 and 96:123.

96:133 Nursing and Health Transitions II 7 s.h.

96:142 Integrated Approach to Professional Nursing Practice 4 s.h.

96:143 Research for Nursing Practice 2 s.h.
The research process and its importance in building the scientific base for nursing practice. Prerequisites: 96:90 and an approved statistics course.

96:144 Nursing in Community Health 7 s.h.
Community health; nursing and public health applied to nursing practice revolving individuals, families, groups, as well as promotion and preservation of community health. Prerequisites: 71:132 and 96:133.

96:145 Nursing Leadership and Care Management 1-3, 5-7, 8 s.h.
Leadership and management concepts applied to a variety of health care delivery systems, classroom component, concentrated clinical internship experience. Prerequisites: 96:143 and 96:144. Prerequisites for R.N. students: 96:142 and 96:143.

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: upper-level statistics course within past five years.

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, use 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; clients'; and nursing administrators' concerns addressed in economic framework; public policy-making process applied to health care.

96:215 Pediatric Pharmacology for Primary Care 3 s.h.
Physiological and pharmacokinetic considerations as framework for applying pharmacologic, pharmacokinetic, and pharmacodynamic principles to pediatric population. Prerequisite: 96:239 or consent of instructor.

96:217 Nursing of Children: Responses to Illness 4 s.h.
Expansion of knowledge and skills in assessment, diagnosis, intervention, and evaluation of responses to illness. Prerequisite: 96:203.

96:218 Nursing of Children: Health Promotion 4 s.h.
Expansion of knowledge and skills in health assessment; formulation of nursing diagnoses related to health, planning, implementation, evaluation of nursing interventions designed to promote health of children and their families. Prerequisite: 96:203.

96:219 Primary Care: Pediatric Nurse Practitioner I 6 s.h.
Advanced knowledge and skills in delivery of primary health care to children, adolescents; physical assessment, data collection, diagnosis, management; classroom and clinical components. Prerequisites: 96:203, 96:204, one child health specialization course, and at least one year clinical experience as an R.N. in a child health setting.

96:220 Primary Care: Pediatric Nurse Practitioner II 6 s.h.
Development of advanced clinical judgment through advanced knowledge and skill in managing common pediatric illnesses, problems; classroom and clinical components. Prerequisite: 96:219. Same as 70:201.

96:221 Primary Care: Pediatric Nurse Practitioner Practicum 4 s.h.
In-depth practicum synthesizing clinical management and role enactment; opportunity for discussion and analysis of practice and role issues. Prerequisite: 96:220.

96:226 Nursing of Adults: Health Promotion 4 s.h.
Expansion of knowledge, skills in assessing health; formulating nursing diagnoses; planning, implementing, evaluating nursing interventions to maintain, promote, optimize the health of adults. Prerequisite: 96:203.

96:227 Nursing of Adults: Response to Illness 4 s.h.
Expansion of knowledge, skills in assessment, diagnosis, interven, evaluation of adults’ response to illness. Prerequisite: 96:203.

96:230 Nursing of Older Adults: Health Promotion 4 s.h.
Health assessment; nursing diagnoses; planning, implementing, evaluating nursing interventions designed to maintain, promote, optimize health of older adults; developmental framework applied to analysis of major health concepts, interventions. Pre- or corequisite: 96:205.

96:231 Nursing of Older Adults: Response to Illness 4 s.h.
Assessment, diagnosis, intervention, evaluation of older adults’ 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.

96:240 Geropharmacology for Primary Care Nursing 3 s.h.
Pharmacologic, pharmacokinetic, and pharmacodynamic principles as applied to elderly; specific classes of drugs frequently used in clinical management of elderly; emphasis on pharmacotherapeutic decision making and monitoring medication effects. Consent of instructor required.

96:242 Primary Care: Gerontological Nurse Practitioner I 6 s.h.
Pathophysiology of diseases; clinical management of health care problems related to cardiovascular, respiratory, central nervous, musculoskeletal systems; implications for management in context of community service, resources. Consent of instructor required. Prerequisites: 96:230 and 96:240.

96:243 Primary Care: Gerontological Nurse Practitioner II 6 s.h.
Continuation of 96:242; clinical management of health care problems related to gastrointestinal, genitourinary, endocrine, immune systems. Consent of instructor required.

96:244 Primary Care: Gerontological Nurse Practitioner III Intensive Practicum 4 s.h.
Transition from student to advanced gerontological nurse practitioner; in-depth primary care experience synthesizing aspects of clinical management and role enactment. Prerequisite: 96:243 or consent of instructor.

96:246 Nursing Education: Process, Roles, and Strategies 3 s.h.
Role of nurse educator through study, application of teaching/learning theories; learning tasks of students in nursing education programs. 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 spring semesters of odd years. Prerequisite: 96:246.

96:250 Psychiatric/Mental Health Nursing Advanced Clinical Practice I 4 s.h.
Psychiatric mental health nursing theory, research, self-evaluation, clinical supervision, criteria for DSM, psychiatric nursing diagnosis; ICD and functional abilities; development status; cultural influences. Master's degree in nursing required.

96:252 Group Interventions in Advanced Psychiatric Nursing Practice 3 s.h.
Group treatment as a therapeutic modality in advanced practice of mental health nursing; models of group intervention for meeting specialized needs of clients across the life span. Master’s degree in nursing required.
Nursing

For Doctoral Candidates

Open only to doctoral students, except 96:440, 96:490, and 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 predictions, 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 Residency in Care of the Elderly 3 s.h.
Project based on relevant gerontological nursing research. Prerequisites: two from 96:410, 96:420, 96:450.

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.

96:470 Methods and Issues in Nursing Interventions Effectiveness Research 3 s.h.
Issues in conducting research on nursing management and on clinical interventions cost effectiveness; methods and issues in classification of nursing, health, health systems phenomena. Doctoral or postdoctoral standing in nursing or consent of instructor required.

96:480 Residency in Nursing Service Administration 3 s.h.

96:490 Research Practicum 0 s.h.
Participation in ongoing investigative team as research assistant; 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 0 s.h.

Electives

The current Schedule of Courses lists nursing electives being offered. Courses vary from semester to semester.

96:112 Human Sexuality 1-3 s.h.
Physiological, psychological aspects. Same as 7C:112, 42:112.

96:116 Loss and Death in Clinical Nursing Practice 3 s.h.
Prerequisite: 96:144.

96:129 Introduction to Genodermatology 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. Same as 153:129.

96:137 Nursing Care of the Patient in Pain 3 s.h.
Focus on assessment, pharmacological and nonpharmacological nursing intervention, evaluation of acute, chronic-frequent, 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 courses and 3.00 grade point average in clinical nursing.

96:149 Undergraduate Compensatory Independent Study 0 s.h.
Additional skill building for undergraduates.

96:150 Independent Study 0 s.h.
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 Seminar 1 s.h.
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.

96:160 Human Structure and Function—A Cellular Approach 3 s.h.
Human tissues, cell types, subcellular organelles, their identification and functions; processes common to normal human cells; necessary components of human cell environments; 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.
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, deviance 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.
96:175 Issues in International Nursing and Health Care 3 s.h.
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 R.N. status or consent of instructor.

96:216 Group Leadership in Human Sexuality 0-3 s.h.
Emphasis on role of group leader; method of teaching didactic presentation, discussion; group experience, practice application. Same as 7C:216, 42:216.

96:296 Independent Study 3 s.h.
Supervised study and/or clinical practice adjusted to needs of master's degree students. Open only to master's students.

96:496 Independent Study 3 s.h.
Supervised study adjusted to needs of doctoral degree students. Open only to doctoral students.
College of Pharmacy

Dean: Gilbert S. Banker
Associate dean, professional programs: Lloyd E. Matheson
Assistant dean, graduate programs and research: Michael W. Duffel
Director, pharmaceutical service: Rolland I. Poust
Director, Iowa Drug Information Service: Hazel H. Seaba
Laboratory director, Center for Advanced Drug Development: Alta Botha

Head, medicinal and natural products chemistry: John P. Rosazza
Head, pharmaceutics: Ronald D. Schoenwald
Interim head, clinical and administrative pharmacy: Bernard A. Sorofman


Professors emeriti: Joseph G. Cannon, David P. Carew, J. Keith Guillory, Dale Eric Wurster

Clinical professors: James A. Ponto, Hazel H. Seaba

Associate professors: Karen Baker, Ting-Fong Chin, Maureen D. Donovan, Lee E. Kirsch, Lloyd E. Matheson, Gary Milavetz, Bernard A. Sorofman, Thomas N. Taylor

Adjunct associate professors: Bruce Alexander, Mark E. Jones, Alan H. Mutnick

Assistant professors: Stephen R. Campion, Paul E. Luner, David I. Man, Saleem E. Noormohamed, Horatio F. Olivo

Adjunct professors: Amy J. Becker, Elizabeth A. Belz, Stephen C. Berquist, Timothy G. Burke, David E. Carlson, Pedro M. Carrillo, Raymond W. Hosek, Laurel M. Janney, Dorothy M. Maker, Mary B. Ross, Edward F. Sarrazin, Nancy E. Sloan, Donald A. Smith, Mark K. Sorenson

Clinical assistant professors: James Budde, Lucinda Buys, William Crow, Vern K. Duba, James Hochins, Holly Kautzman, Craig Logemann, Kevin Moores

Associates: Michael E. Klepser, Bradley G. Phillips, Thomas Redford, Shane D. Scott, Ericka J. Wolfe

Adjunct instructors: David H. Bernhardt, Randy W. Burden, Carl E. Hensley, Warren A. Knarr, Mary J. Starry


Degrees: B.S.Ph.; Pharm.D.; M.S., Ph.D. in Pharmacy
The pharmacy profession is concerned with a wide variety of activities, from developing new drug products to dispensing medicines to patients. A recent concept in the delivery of pharmaceutical services is pharmaceutical care — the responsible provision of drug therapy to achieve defined outcomes that improve patients' quality of life. These outcomes include preventing, arresting, or curing a disease, or eliminating or reducing its symptoms.

Implementation of the pharmaceutical care model is expected to enhance health care in rural settings and in primary care among the elderly, who are by far the heaviest users of drug therapy. In order to carry out these responsibilities, pharmacists specialize in the science of drugs and drug information.

The familiar picture of the pharmacist in the corner drug store is only one part of the mosaic. Pharmacists also are active in research, clinical, teaching, and counseling. While training in science and drug preparation, they also learn the business and communication skills necessary for their multifaceted careers.

Demand for qualified pharmacists is high. Iowa's graduates enjoy a 100-percent placement rate. Iowa's pharmacy students study with professors who, in many cases, are pioneering the development of new drugs to solve chronic health problems. They also enjoy advanced research facilities, including those of Iowa's drug research and manufacturing area, where experimental drugs are produced for testing and licensing by manufacturers before being introduced worldwide.

**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, 23 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/fail, credit by examination, maximum schedule, second-grade-only option, waiver or substitution of courses, cancellation of registration, drop date, and correspondence study are provided in the College of Pharmacy section of the 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 P4 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 and a personal statement for admission to the College of Pharmacy. The Pharmacy College Admission Test (PCAT) also are required for admission.

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: 1 O) of a two-semester sequence

**General chemistry** 8 semester hours

**Mathematics:** 3-4 semester hours of a satisfactory differential and integral calculus course

**Physics:** one year of high school physics

**General education electives:** at least 6 semester hours

Each student must complete 23 semester hours of general education courses in order to graduate. These elected courses should be in the behavioral, social, and humanistic disciplines.

**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 before they enroll as University of Iowa pharmacy students.

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 grade of C or higher is required for transfer work applied 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 specific courses listed here, students must complete 23 semester hours of general education courses chosen from the behavioral, social, and humanistic disciplines.*

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>2:11 Principles of Biology II</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4:121 Organic Chemistry I</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:49 Introduction to Pharmaceutical Care</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60:1 Principles of Human Anatomy</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>General education elective(s)</em></td>
<td>3-6 s.h.</td>
<td></td>
</tr>
<tr>
<td>Second Semester</td>
<td>4:122 Organic Chemistry II</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4:141 Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:22 Pharmaceutical Socioeconomic Health Care Systems</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:50 Introduction to Pharmaceutical Sciences</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>General education electives</em></td>
<td>5 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>46:35 Pharmaceutical Socioeconomic Practice Management</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:123 Pharmaceutical Technology: Solutions (lecture)</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:133 Pharmaceutical Technology: Solutions Laboratory</td>
<td>1 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>61:112 Health Sciences Microbiology</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>99:162 Biochemistry for Pharmacy Students</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>Second Semester</td>
<td>46:55 Career Options</td>
<td>1 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:61 Drug Information</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:124 Pharmaceutical Technology: Solids (lecture)</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:128 Medicinal and Natural Products Chemistry I: Biotechnology and Chemotherapy</td>
<td>5 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:134 Pharmaceutical Technology: Solids Laboratory</td>
<td>1 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>72:150 Intermediate Physiology</td>
<td>4 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>46:125 Pharmacotherapy I</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46:131 Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents</td>
<td>5 s.h.</td>
<td></td>
</tr>
</tbody>
</table>
Graduation
Graduation from the College of Pharmacy with the Doctor of Pharmacy degree requires completion of all required courses plus the 23 semester hours of general education electives. In order to graduate, students must earn a pharmacy grade-point average and a total cumulative grade-point average of at least 2.00. The pharmacy grade-point average is computed from the grades earned in all of the specific required courses that students have completed while enrolled in the College of Pharmacy.

Graduate Programs
The college has graduate programs in each of its three academic divisions. Master of Science and/or Doctor of Philosophy programs are available in pharmaceutics, medicinal and natural products chemistry, and clinical and administrative pharmacy.

Advanced study in the pharmaceutical sciences prepares students for research, teaching, and administrative positions in the pharmaceutical industry, in colleges and universities, in government agencies, and in a number of health-related institutions and organizations.

The application deadlines, grade-point average for admission, Graduate Record Examination (GRE) Aptitude Test scores, and necessary letters of recommendation are the same as those for the Graduate College. Academic requirements for maintaining graduate registration are determined by individual divisions of the College of Pharmacy.

Postbaccalaureate Doctor of Pharmacy (Pharm.D.)
This program is a two-year, postbaccalaureate professional degree program that combines didactic course work and clinical clerkship. The program is accredited by the American Council on Pharmaceutical Education. The major goal of the program is to provide the health care system with pharmacists who are specifically prepared to undertake an extended role in monitoring, metabolizing, and optimizing drug therapy in hospitalized and ambulatory patients. This program is available to a limited number of highly qualified pharmacy graduates.

Prospective students may obtain specific information on the postbaccalaureate program by writing to the College of Pharmacy.
Courses
For Doctor of Pharmacy Students

Pharmaceutics

46:50 Introduction to Pharmaceutical Sciences 3 s.h.
Basic problem solving; dosage forms; equilibrium, kinetic properties of pharmaceutical systems, influence of chemical structure on these properties. Open only to P1 students.

46:55 Career Options 1 s.h.
Practice and non-practice opportunities available to pharmacy graduates.

46:70 Pharmacy Math 2 s.h.
Application of statistics to pharmaceutical problems.

46:123 Pharmaceutical Technology Solution 3 s.h.
Application of physical, chemical laws to formulation, preparation of liquid dosage forms, including solution, colloids, ointments, emulsions. P2 standing required. Prerequisite: 4:122.

46:124 Pharmaceutical Technology: Solids 3 s.h.
Properties of solids; formulation, preparation, evaluation of solid dosage forms. P2 standing required. Prerequisite: 4:122.

46:133 Pharmaceutical Technology: Solutions Laboratory 1 s.h.
Supports lecture topics in 46:123, which is corequisite. Prerequisite: 4:122.

46:134 Pharmaceutical Technology: Solids Laboratory 1 s.h.
Supports lecture topics in 46:124, which is corequisite. Prerequisites: 4:122 and 4:123.

46:138 Introduction to Pharmacokinetics 3 s.h.
Qualitative, quantitative description of kinetics of drug absorption, distribution, elimination, including physiological factors that influence each process; adjustment of dosing regimens for optimizing therapeutic drug levels in the body. Prerequisite: 4:124.

46:143 Professional Practice 4 s.h.
Extemporaneous compounding, dispensing of medications, use of computers, intravenous admixtures; development of communication skills necessary for delivery of pharmaceutical care.

46:145 Therapeutic and Diagnostic Systems 2 s.h.
Design, selection, use of 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.

46:173 Drug-Induced Diseases 2 s.h.
Drug-induced diseases according to affected organ systems.

Medicinal and Natural Products Chemistry

46:128 Medicinal and Natural Products Chemistry I: Biotechnology and Chemotherapy 5 s.h.
First of a three semester sequence; organic and inorganic medicinal and therapeutic agents of natural and synthetic origin; physical, chemical, biological, and biochemical properties as they relate to medicinal and therapeutic effects; comparative biological activity and toxicity; detoxification mechanisms; functional group chemistry; nomenclature; chemistry of radiodiagnostic and therapeutic agents; introduction to biopharmaceutical analysis. Prerequisites: 4:122 or 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.

46:155 Perspectives in MCNP Research 1 s.h.
Contemporary research in medicinal chemistry and natural products.

Clinical and Administrative Pharmacy

46:22 Pharmaceutical Socioeconomic: Health Care Systems 4 s.h.
Overview of the U.S. health care delivery system, with emphasis on socioeconomic and political factors affecting health care delivery; role of pharmacy and the pharmaceutical industry.

46:35 Pharmaceutical Socioeconomic: Practice Management 3 s.h.
Prerequisites procedures necessary for good management of human and financial resources in pharmaceutical organizations; case-study approach, with principles applied to real-life situations.

46:49 Introduction to Pharmaceutical Care 2 s.h.
Patient centered care, patient communication, information retrieval and analysis, clinical problem-solving skills. Open only to first year pharmacy students.

46:59 Hospital Pharmacy Extremism 4 s.h.
Instruction and practical experience in components of hospital pharmacy; emphasis on hospital organization, inpatient and outpatient services, IV additives, unit dose, clinical services; many sites available. P4 standing and consent of instructor required.

46:60 Community Pharmacy Extremism 4 s.h.
Conducted primarily in community pharmacies; emphasis on communication skills with patients and didactic education in nonprescription drug use. P4 standing and consent of instructor required.

46:61 Drug Information 3 s.h.
Application of drug information resources and drug literature evaluation. Prerequisite: 46:111.

46:80 Medicine Clerkship 4 s.h.

46:81 Family Practice Clerkship 4 s.h.

46:82 Pediatrics Clerkship 4 s.h.

46:84 Psychiatry Clerkship 4 s.h.

46:85 Neurology Clerkship 4 s.h.

46:86 Surgery Clerkship 4 s.h.

46:87 Clinical Nuclear Pharmacy Clerkship 4 s.h.

46:88 Dental College Clerkship 4 s.h.

46:89 Elective Clerkship 4 s.h.

46:102 Pharmacy Honors Seminar 1 s.h.
Scientific, philosophical, economic, ethical issues of importance to the practice of pharmacy.

46:110 Therapeutics I 4 s.h.

46:111 Therapeutics II 4 s.h.

46:115 Clinical Pharmacy: Drug Literature Review and Evaluation 4 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.

46:120 Pharmaceutical Care Systems 3 s.h.

46:125 Pharmacotherapy I 4 s.h.

46:126 Pharmacotherapy II 5 s.h.
Continuation of 46:125, which is prerequisite.

46:136 Physical Assessment 2 s.h.
Skills in health assessment. Prerequisite: 46:126.

46:141 Jurisprudence 2 s.h.
Overview of U.S. legal systems, with emphasis on contracts, torts, related areas of civil law; federal food, drug, and cosmetic law; federal laws regulating narcotics, other dangerous drugs; state and federal laws regulating pharmacy practice, drug distribution.

46:161 Drug Information Clerkship ST.
Drug information knowledge applied to service and research projects. Pharm.D. standing and consent of instructor required.

46:165 Pharmacotherapy III 5 s.h.
Continuation of 46:126, which is prerequisite.

46:166 Pharmacotherapy IV 5 s.h.
Continuation of 46:165, which is prerequisite.
46:245 Clinical-Hospital Pharmacy Seminar 1-2 s.h.
Current topics in clinical and hospital pharmacy specialty. May be repeated.

For Graduate Students

Pharmaceutics

46:101 Pharmacy Projects 1-3 s.h.
Basic and applied research problems of pharmaceutical interest.

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 pharmacology. 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.

46:225 Product Development 3 s.h.
Application of physicochemical principles to formulation and design of pharmaceutical dosage forms.

46:226 Product Development 3 s.h.
Continuation of 46:225, which is prerequisite.

46:229 Advanced Pharmacokinetics and Pharmacodynamics 2 s.h.
Selected topics, including nonlinear curve fittings. Prerequisite: 46:148.

46:231 Pharmacy Seminar 1-2 s.h.
May be repeated.

46:232 Drug Delivery Principles and Applications 3 s.h.
Design and development of drug delivery systems; mathematical analysis of dosage form performance; applications of advanced technology in emerging systems. 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, volubility. 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.

46:155 Molecular Modeling Techniques 1 2 s.h.
Model building, conformational optimization, bioisomer 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.

46:208 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.

46:211 Heterocycles 3 s.h.
Selected heterocyclic ring systems of medicinal importance; special references to synthesis, mechanisms, and stereochemistry as related to biological 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, understanding of molecular-level interactions of endogenous and exogenous organic molecules with receptor sites on macromolecules. Consent of instructor required. Prerequisites: 46:205 or 4:132 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. Prerequisite: 46:132 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 Biosynthesis of Natural Products 3 s.h.
Biosynthesis of actinomycins, alkaloids, aromatic compounds, terpenes by plant and microbial systems; important groups of natural products surveyed according to biosynthetic origin; isotopic labeling methods, principles of biomimetic 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 99:110, or consent of instructor.

46:224 Biocatalysts in Natural Products Chemistry 3 s.h.
Microbial synthesis: fermentation conditions, principles of biocatalysis; applications include biocatalysts 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 1-2 s.h.

46:230 Selected Topics in Medicinal and Natural Products Chemistry 1-2 s.h.

46:250 Synthetic Strategy in Medicinal Chemistry II 3 s.h.
Knowledge of chemical reactions and structure-activity relations used in combination with synthetic strategies for complex molecules, 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 Administrative Pharmacy

46:122 Pharmaceutical Economics 4 s.h.
Economic environments of the pharmaceutical industry, all levels of drug distribution chain, relevant sectors of health care system; use of economic theory, methods, models in studying these environments.

46:147 Introduction to Research Methods 3 s.h.
Scientific inquiry, experimental design, data collection, statistical methods used in the study of health services and clinical investigations; focus on understanding the research process and evaluating published studies. Preference given to students who have had introductory statistics. Consent of instructor required.

46:160 Advanced Problems in Pharmaceutical Economics 1 s.h.
Independent study of problems in pharmaceutical economics, under supervision of faculty member; data collection, literature review.

46:190 Medications in International Perspective 2 s.h.
Role of drugs in health care systems, sociocultural perspective; geographic, cultural, technological diversity.

46:213 Pharmaceutical Economics Seminar 1-2 s.h.
Recent research in pharmacy administration. Maybe repeated.

46:243 Clinical-Hospital Pharmacy Research arr.


46:253 Pharmaceutical Economics Research Methods 3 s.h.
Scientific approaches to solving problems in pharmacy administration; emphasis on research problems and design. Prerequisite: 228:102 or equivalent.

46:255 Social Pharmacy 3 s.h.
Behavioral and social aspects of drug use society; emphasis on therapeutic uses of medications, pharmaceutical care systems, pharmacy-related health behaviors.

46:257 Foundation Literature in Pharmaceutical Economics 3 s.h.
Issues related to pharmacy administration, social and behavioral pharmacy, pharmacy education.

46:260 Economic Evaluation of Pharmaceuticals 3 s.h.
Methods for evaluating economic consequences of pharmaceutical interventions, including cost-minimization, cost-effectiveness, cost-utility, cost benefit analyses; discussion of policy issues, including potential for bias, use for reimbursement, role of FDA.

46:261 Workshop: Analysis of Claims Data 3 s.h.
Hands-on instruction in health insurance claims data; evaluating economic consequences of pharmaceutical interventions; strengths and limitations of administrative data. Prerequisite: 46:260 or consent of instructor.

46:262 Workshop: Cost-Utility Analysis 3 s.h.
Hands-on experience in health state preference, willingness to pay assessment; cost-utility and cost-benefit analyses. Prerequisite: 46:260 or consent of instructor.

46:280 Clinical Pharmacy Research Seminar 1-2 s.h.
Research by faculty, graduate students.

46:282 Advanced Pharmacokinetics/Pharmacodynamic Topics 2 s.h.
Basic concepts, computer fitting. Prerequisite: 46:170.

46:284 Research Design for Clinic-Dealt Studies 2 s.h.
Developing, writing clinical trials. Consent of instructor required.

For Postbaccalaureate Pharm.D. Students

Pharm.D. standing and consent of instructor are required for all courses.


46:171 Advanced Therapeutics I 3 s.h.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:172</td>
<td>Advanced Therapeutics II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:174</td>
<td>Fluid and Electrolyte Therapy</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>46:176</td>
<td>Advanced Therapeutics III</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
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
Manager: Kim Wall

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

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: Dwight E. Jensen

The Center for Conferences and Institutes is the University’s principal agency for developing, coordinating, and conducting noncredit continuing education programs for nonresident 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

In cooperation with participating University colleges and departments, the Center for Credit Programs delivers University of Iowa credit courses in Iowa City and throughout the state in a variety of formats and delivery systems. These instructional activities extend the University’s resources to students whose job, family, geographic location, or other personal circumstances prevent them from attending daytime classes on campus. Students need not be admitted to the University in order to enroll in courses. For more information, contact the center or visit its home page at the University’s World Wide Web site.

Guided Correspondence Study

More than 160 Guided Correspondence Study courses are available in the Colleges of Liberal Arts, Business Administration, Education, Medicine, and Nursing. These courses represent some 40 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 Center for Credit Programs.

Off-Campus Classes

In cooperation with the participating academic departments, the Center for Credit Programs delivers 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 interactive television and 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. Brochures announcing course offerings are available from the Center for Credit Programs.

Saturday & Evening Classes

The Center for Credit Programs cooperates with University academic departments to offer 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 & 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 & Evening Courses, Guided Correspondence Study 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 policymakers 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. To this end, the center has the personnel and facility resources to help units purchase equipment and supplies and carry out production and postproduction 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: Owen J. Newlin, Des Moines
Thomas C. Dorr, Marcus
Roger Lande, Mascotin
Ellengray Kennedy, Bancroft
Nancy C. Pellett, Atlantic
John E. Tyrrell, Manchester
Executive secretary: R. Wayne Richey

Central Administration
President: Mary Sue Coleman
Provost: Jon Whitmore

Vice president for health sciences: Jon Whitmore
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: Jon Whitmore
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
Associate vice president: William F. Decker
Center for Health Services Research
Director: James E. Rohrer
Division of Sponsored Programs
Director: Brian Harvey
Health Protection Office
Director: James C. Walker
Information Technology Services
Director: William F. Decker
Oberram Center for Advanced Studies
Director: Jay Semel
Occupational Health Service
Director: Laurence Fuortes
Office of Information Technology
Director: William F. Decker
State Archaeologist
William Green
Technology Innovation Center
Director: W. Bruce Wheaton
University of Iowa Press
Director: Paul Zimmer
University Veterinarian
Paul S. Cooper

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
Director: Jean Kendall
Student Disability Services
Director: Donna Chandler
Residence Services
Acting director: Maggie Van Oel
Special Support Services
Director: Rolando Arroyo-Sucre
Student Financial Aid
Director: Mark Warner

University Counseling Service
Director: Gerald L. Stone
Women’s Resource and Action Center
Coordinator: Monique DiCarlo

Finance and University Services
Vice president and treasurer: Douglas K. True
Assistant vice president and controller: Mary Jane Beach
Business manager: Michael J. Finnegan
Director of financial management and budget and university secretary: Douglas M. Young
Physical Plant
Director: George Klein
Planning and Administrative Services
Director: Richard E. Gibson
Public Safety
Director: Charles Green
Purchasing
Director: Richard Scharff
Recreational Services
Director: Harry R. Ostrander
University Personnel Services
Director: Marvin J. Lynch

University Relations
Vice president: Ann M. Rhodes
Alumni Association
Acting director: Vince C. Nelson
Athletic Training Services
Director: Edward T. Crowley
Health Science Relations
Director: Mary Abboud-Kamps
Intercollegiate Athletics for Men
Director: Robert A. Bowlsby
Intercollegiate Athletics for Women
Director: Christine H.B. Grant
Old Capitol
Acting director: Ann E. Smothers
Radio Stations WSUI-KSUI
Director: John O. Monick
State Relations
Director: Ted O. Yaneeck
University Relations
Director: Joanne Fritz
Health Sciences Center

Vice president:
College of Dentistry
Dean: David C. Johnsen
College of Medicine
Dean: Robert P. Kelch
College of Nursing
Acting dean: Geraldene Felton
College of Pharmacy
Dean: Gilbert S. Banker
Regional Child Health Specialty Clinics
Director: Richard P. Nelson
State Hygienic Laboratory
Director: Mary J.R. Gilchrist
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 as of July 1, 1996. In this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses.


Abouaouf, Francois, Baccalauréat Christian Brothers’ Schools (Egypt) 1948, P.S.Cairo (Egypt) 1949, M.B.B.Ch. Ain Chains (Egypt) 1955; professor, Internal Medicine/Physiology and Biophysics, 1960 (1968)


Alexander, David T., B.S. Yale 1975, M.D. Columbia 1979; clinical professor, Pediatrics, 1996


Alexander, Saramma J., M.B.B.S. Christian Medical College (India) 1965; clinical assistant professor, Internal Medicine, 1988 (1990)


Anderson, Raymond R., M.S. Iowa 1975, Ph.D. 1989; adjunct assistant professor, Geology, 1993

Anderson, Robert W., B.A. Iowa 1955, M.D. 1955; clinical assistant professor emeritus, Pediatrics, 1976

Anderson, Steven W., B.A. South Florida 1982, M.A. Iowa 1985, Ph.D. 1987; adjunct assistant professor, Neurology/Psychology, 1994


Anderson, Steven W., B.A. South Florida 1982, M.A. Iowa 1985, Ph.D. 1987; adjunct assistant professor, Neurology/Psychology, 1994


Andringa, Dale J., B.A. Calvin 1972, M.D. Iowa 1976; clinical assistant professor, Internal Medicine, 1984


Antle, Joel R., B.S. Illinois State 1941, M.A. Chicago 1942; assistant professor emeritus, Nursing, 1941 (1972)


Boyd, Gordon, B.S. Nebraska 1968, M.D. Iowa 1972; associate professor, Medicine, 1972.


Boyce, W., B.S. Minnesota 1949, M.D. 1951.


Brooks, Michael S., B.S. California-Davis 1977, M.D. Loyola 1980; clinical assistant professor, Internal Medicine, 1986.


Brown, Peter, B.S. Portland 1946, M.D. Loyola (Chicago) 1948; professor emeritus, Radiology, 1956 (1990)
Brown, Thomas M., Jr., B.S. Vanderbilt 1965, M.D. 1969; clinical professor assistant Internal Medicine, 1980
Bryles, Beth A., Pharm.D. Kansas 1994; adjunct instructor, Pharmacy, 1995
Bushnell, David, B.S. Illinois 1975, M.D. 1979; associate professor emeritus, Radiology, 1982
Busse, John, B.S. Oregon (Omaha) 1975; M.A. Iowa 1985, M.F.A. 1987; adjunct assistant professor Art and Art History, 1988
Caplan, Robert H., B.S. Purdue 1958, M.D. Chicago 1961; clinical associate professor Internal Medicine, 1988 (1998)
Carew, David P., B.S. Massachusetts College of Pharmacy 1952, M.S. 1954; Ph.D. Connecticut 1958; professor Pharmacy, 1957(1965)
Carlson, Barbara B., B.S.N. Mary Washington 1964, M.A. Iowa 1971; adjunct instructor, Nursing 1984
Bunge, Steven M., M.D. Iowa 1978; clinical instructor, Internal Medicine, 1995
Burns, Molly Renee, B.S.N. Iowa 1979, M.S.N. Texas 1982; adjunct instructor, Nursing 1992


Frederickson, Mary Ann, B.S. Iowa, M.A.; adjunct instructor, Nursing 1985.


Gangaware, Carole Ann, B.S.N. St. Olaf 1967, M.S.N. Minnesota 1966; adjunct assistant professor, Nursing 1993
Gordon, David F., A.B. Western Reserve 1958, M.D. 1961; associate professor, Internal Medicine, 1964
Gordon, David F., A.B. Harvard 1964, M.D. 1968; clinical assistant professor, Internal Medicine, 1973
Gordon, Joel A., B.A. Colorado (Boulder) 1972, M.D. Colorado (Denver) 1976; associate professor, Internal Medicine, 1987 (1992)
Graber, Mark A., B.S. William and Mary 1978, M.D. 1986; clinical assistant professor, Surgery, 1982
Habak, Philip A., M.B.B.Ch. Ain-Shams (Egypt) 1963; clinical assistant professor, Internal Medicine, 1973 (1977)
Hade, Joel E., B.A. Simpson 1979, M.D. Iowa 1983; clinical assistant professor, Internal Medicine, 1995
Hakes, Thomas E., B.A. Central College (Iowa) 1974, M.D. Iowa 1978; clinical instructor, Internal Medicine, 1990
Hallberg, George R., A.B. Augusta 1970, Ph.D. Iowa 1975; associate professor, Geology/Civil and Environmental Engineering, 1976
Handa, Puneet, B.S. Delhi 1977, PDDM Indian Inst. of Mgmt. 1979, Ph.D. Iowa 1986; associate professor, Finance, 1993
Hansen, John P., B.A. Iowa 1976, Ph.D. 1983; adjunct assistant professor, Physics and Astronomy, 1994
Hansen, Richard F., B. Arch. Iowa State 1955; adjunct assistant professor, Hospital and Health Administration, 1987
Hanson, David H., B.S. Iowa State 1974, M.D. Iowa 1978; clinical assistant professor, Family Practice, 1990
Hanson, James W., M.D. Iowa 1969; professor, Pediatrics/Preventive Medicine and Environmental Health, 1991
Hanson, Randall R., B.S. Iowa State 1965, M.D. Iowa 1969; clinical assistant professor, Internal Medicine, 1974 (1977)
Hao, Lingxin, B.A. South China Teachers College (China) 1985, Ph.D. Chicago 1990; assistant professor, Sociology, 1990
Harb, Nidaf H, M.D. Leningrad 1980; associate professor, Preventive and Community Dentistry, 1995
Hendrix, Stephen D., B.S. Florida State University 1969, Ph.D. California (Berkeley) 1975; professor, Biological Sciences, 1975 (1994)
Hertel, Loreen A., B.A. Grinnell 1973, M.D. Iowa 1981; associate professor, Microbiology, 1986
Heyliger, Merle A., B.S. Northern Missouri 1976, M.S.N. Texas (Austin) 1977; associate professor, Nursing, 1993
Hemmelgarn, Robert J., B.A. Iowa 1969, M.D. Michigan 1977; J.D. Iowa 1984; associate professor (clinical), Surgery/Internal Medicine, 1995
Hunsicker, Lawrence G., B.A. Yale 1959, M.D. Columbia 1963; professor, Internal Medicine, 1976
Huss, Charles D., B.S. Northern Iowa 1971, M.D. Iowa 1976; clinical assistant professor, Family Practice, 1982
Hussey, David H., B.S. Beloit 1959, M.D. Washington (Missour) 1964; professor, Radiology, 1985
Hutchinson, Brian T., B.A. Colby 1975, Ph.D. Iowa 1995; adjunct assistant professor, Philosophy, 1995
Iannone, Liberato A., B.S. Niagara 1963, M.D. 1974; associate professor, Biological Sciences, 1990
Irwin, W. R., B.A. Grinnell 1936, M.A. Columbia 1937 (1948)
Johnson, George F., B.A. Park 1963, Ph.D. Iowa 1973; associate professor, Biological Sciences, 1990
Johnson, Dorothy, B.A. Cincinnati 1972, M.A. 1979; assistant professor, Psychology, 1992
Jones, Bradley D., B.S. Maryland 1986; Ph.D. 1989; associate professor, Microbiology, 1994
Jordan, John M., B.S. St. Louis College of Pharmacy 1977, Ph.D. Iowa 1990; adjunct assistant professor, Pharmacy, 1994
Jorgensen, Jane E., B.S. Aarhus (Denmark) 1968, M.S. Ph.D. 1970; professor, Psychology, 1994
Jun, Youn-I, J.D. Iowa 1983; associate professor, Philosophy, 1992
Josephson, Nathan, B.S. Iowa 1968, M.D. 1971; clinical associate professor, Internal Medicine, 1974 (1978)
Justin, John C., M.B.B.S. Punjab (India) 1963; clinical associate professor, Pediatrics, 1977(1994)
Karbunk, George A. Brooklin 1939, Ph.D. Iowa State 1943; professor emeritus, Biochemistry, 1946 (1958)
Kamal, Gagan D., M.D. Maulana Azad Med College Delhi-India 1980; assistant professor, Anesthesia, 1989
Kammermeyer, Karl, B.S. Michigan 1930, B.S. 1930, M.S.E. 1931, D. Sc. 1932; professor emeritus, Chemical and Biochemical Engineering 1949 (1972)
Kashyap, P.K. B.A. Augustana 1983, M.D. Rush Medical 1987; clinical instructor, Internal Medicine, 1995
Karnell, Michael P., B.A. Western Michigan 1978, M.A. 1979; associate professor, Otolaryngology-Head and Neck Surgery, 1993
Karrman, Mark W., B.A. Drake 1980, M.D. Iowa 1984; assistant professor (clinical), Internal Medicine, 1995
Kaufman, Lisa M., B.S. Notre Dame 1984, M.D. Wisconsin 1988; assistant professor (clinical), Internal Medicine, 1995
Kavale, Kenneth A., B.A. Brooklyn 1967, Ph.D. Minnesota 1970; professor, Curriculum and Instruction, 1974
Kelly, Thomas W., M.D. Iowa 1955; clinical associate professor, Pediatrics, 1958
Kemp, John D., B.A. Indiana 1971, M.D. 1975; professor, Pathology/Microbiology, 1982 (1990)
Kim, Eun-Mi, B. A. Ankara (Turkey) 1957; M.D. 1961; professor, Neurology, 1972(1977)
Kiochos, John M., B.S. Gymnasium (Germany) 1953, M.D. Heidelberg (Germany) 1959; associate professor, Internal Medicine, 1966 (1972)
Kirchner, Peter T., B.A. Yale 1960, M.D. Columbia 1964; associate professor, Radiology/Internal Medicine, 1981 (1983)
Kirsch, Lee E., B.S. Purdue 1975, Ph.D. Ohio State 1982; associate professor, Pharmacy, 1994
Maden, Donald H., B.S.M.E. Iowa State 1944, M.S.M.E. Purdue 1948, Ph.D. 1953; professor emeritus, Mechanical Engineering 1954 (1990)


Makar, Adele F., M.B. Assuit (Egypt) 1974; clinical assistant professor, Pediatrics, 1987


Maktabi, Mazen A., M.D. Cairo (Egypt) 1978; assistant professor, Anesthesiology, 1991


Malak, Usha, B.S.C. Concordia (Canada) 1978, M.D.C.M. McGill-Cana2 1982, FRCS (C) Royal College 1988; associate professor, Surgery, 1992


Martin, John, B.S. Lewis Institute 1930, M.S. Northwestern 1934, M.D. 1941; clinical professor emeritus, Surgery, 1978 (1990)


Maxfield, Donald R., B.A. Iowa 1959, M.A. 1962; associate professor (clinical), Internal Medicine, 1993


McCarter, Linda, B.A. Hawaii 1974, Ph.D. California-Davis 1983; assistant professor, Microbiology, 1996


McCarty Ann Marie, B.A. Simmons College 1972, M.S. Boston College 1976, Ph.D. Iowa 1990; assistant professor, Nursing, 1993

McCarty, Ellen B. Southern Maine 1981, M.A. Yale 1987; assistant professor, Theatre Arts, 1993


McCue, Lauren E., B.A. Wisconsin (Madison) 1969, M.D. 1981; clinical assistant professor, Preventive Medicine and Environmental Health 1991

Palmer, Geoffrey, professor, Law, 1993
Papadopoulos, I. B., B.S. Loyola 1931, M.S. 1932, M.D. 1934; clinical professor emeritus, Surgery, 1955 (1 977)
Pardini, Benet J., B.A. Northwestern 1976, Ph.D. Loyola (Chicago) 1983; adjunct assistant professor, Internal Medicine and Biophysics, 1989
Park, Hee-Chull, M.D. Yonsei (Korea) 1962; clinical assistant professor, Internal Medicine, 1979
Park, Joon B., B.S. Boston University 1967, M.S. Massachusetts Institute of Technology 1969, Ph.D. Utah 1972; professor, Biomedical Engineering/Mechanical Engineering 1983
Petersen, Linda S., B.A. Iowa 1978, M.S.W. 1988; associate professor, Humanity, 1985
Pfahl, E. James, B.S. Iowa 1979, M.S. 1980; assistant professor, Microbiology, 1980 (1985)
Pintner, Donald J., B.S. Iowa State 1960; professor Chemistry, 1961 (1979)
Pitt, Andrew, D. B.S. Haverford 1979, M.D. Southern California 1985; assistant professor Psychiatry, 1988
Pilch, E. James, B.S. Iowa 1979, M.S. 1980; assistant professor, Microbiology, 1980 (1985)


Quinlan, Stephen M., B.S. Iowa State 1978, M.D. Iowa 1982; clinical assistant professor, Urology, 1993


Rachow, John W., B.S. Nebraska (Lincoln) 1967, M.S. 1969, Ph.D. 1976, M.D. Nebraska (Omaha) 1976; associate professor Internal Medicine, 1988


Ray, Robert S., B.S. Instituto National de Varones (Guatemala) 1957, M.D. Carls (Guatemala) 1966; clinical assistant professor Surgery, 1979


Rethwisch, David G., B.S. Iowa 1979, Ph.D. Wisconsin (Madison) 1985; professor Chemical and Biochemical Engineering, 1986 (1985)


Rezaei, Karm D., M.D. Shiraz Medical School 1997; 1991; associate professor Radiology, 1984 (1988)


Richards, Anita, B.A. Northern Iowa 1963, M.S.W. Iowa 1980; assistant professor, Social Work, 1988

Richards, Carl J., B.A. Iowa 1960, M.D. 1964; clinical associate professor Internal Medicine, 1991


Richardson, Robert L., D.M.D. Louisville 1944, M.S.
Iowa 1953; associate professor Emeritus, Microbiology, 1951 (1984)
Richenbacher, Wayne E., B.S. Case Western Reserve 1976, M.D.
Cincinnati College 1980; associate professor, Surgery, 1993
Richerson, Hal B., B.S. Arizona 1950, M.D.
Northwestern 1954; professor, Internal Medicine, 1980 (1994)
Richman, Lynn C., B.A. Grinnell 1967, M.A. Iowa
Rick, Edward L., B.S. Illinois-Champaign-Urbana
Ries, Peter C., B.S. Rutgers 1958, M.A. Columbia
1963, Ph.D. 1971; professor Marketing 1968 (1 980)
Rietz, Thomas A., B.A. Northwestern 1938, Ph.D.
Iowa 1943; associate professor, Microbiology, 1940 (1965)
Riley, James F., Jr., B.S. Washington (Missouri)
Riggle, Charles E., Jr., B.A. Johns Hopkins 1972, M.D.
associate professor Internal Medicine, 1983 (1990)
Rigter, Charles B., B.Mus. Nebraska 1917, B.F.A.
1926, associate professor emeritus, Music, 1950 (1991)
Rijhsinghani, Asha, Inter-Science Jaihind
Riley, Ann Louise, B.S.N. Mount Mercy 1976, M.A.
Iowa 1991; adjunct instructor, Nursing, 1995
Riley, Susan, V.N.A. Iowa, M.A.; adjunct instructor, Nursing 1985
Riley, Walter J., B.S. Fort Valley State 1960, M.D.
Rim, Kwan, B.S.M.E. Tri-State 1955, M.S.M.E.
Rinehart, Judith, B.A. Central 1966, M.S.W.
Ringen, Jon, B.A. North Dakota 1965, M.A. Indiana
1969, Ph.D. 1971; professor, Literature, Science and Society, 1992
Ringold, Elbert W., B.A. Park 1927, M.A. Middlebury
River, George L., A.B. Chicago 1952, M.D.
Loyola-Stritch 1956; clinical assistant professor Internal Medicine, 1978
Rizzo, Matthew, A.B. Columbia 1975, M.D. Johns
Robbins, Michael E., B., B.C. Thomas Polytechnic
1976, Ph.D. 1980; associate professor, Radiology, 1993
Robert, Allan F., B.A. Amherst 1968, M.A. Chicago
Roberts, Mary Ann, B.A. Oberlin 1973, M.S.
Roberts, Ralph Jr., B.A. Lebanon Valley 1950, M.A.
Roberts, Rebecca S., B.A. California State 1969, M.S.


Schurz, Steven, M.D. Iowa 1972, M.D. 1975; clinical assistant professor, Otolaryngology, 1985.


Shadur, Craig A., B.A. Iowa 1941, M.D. Iowa 1974; Clinical assistant professor Internal Medicine, 1981 (1996).


Sharp, Stephan C., B.S. Southern Methodist University (Rhode College) 1983, M.D. Tennessee 1987; assistant professor (clinical), Internal Medicine, 1995.


Shi, Ming-Chie, B.S. Chung-ai Taiwan 1976, Ph.D. Iowa 1983; associate professor Biological Sciences, 1988 (1994).


Pratt, William, Jr., B.S. Pennsylvania 1951, M.D. Pennsylvania 1955; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of California (San Francisco) 1966; M.D. University of}


Torrens, Jeanne A., B.S.N. Iowa 1964, M.S. Syracuse 1980; adjunct instructor, Nursing, 1985

Touhy, Nancy J., B.S. Cal Poly Polytechnic State 1984, Ph.D. Yale 1990; assistant professor Chemistry, 1993


Van Aernum, Carol, R.D.H, Iowa 1962; clinical assistant professor Preventive and Community Dentistry, 1965


Vanzeel, Beth C., B.A. Iowa 1967, M.S.W. 1971; adjunct instructor, Psychology, 1994


Veek, Lisa A., B.A. Iowa 1979, M.D. 1983; clinical assistant professor, Internal Medicine, 1991


Ver Steeg, Dirk A., B.S. Iowa State 1980, M.D. Iowa 1984; clinical assistant professor Internal Medicine, 1995


Vickstrom, Douglas, B.A. Nebraska 1969, M.D. 1973; clinical assistant professor, Internal Medicine, 1978


Vitutawong, Vichit, M.D. Ramathibodi (Thailand) 1972; clinical assistant professor, Internal Medicine, 1979


Vogel, Scott A., B.A. Minnesota 1980, M.D. South Dakota 1987; assistant professor (clinical), Internal Medicine, 1995

Voigt, Michael D., M.B.ChB Pretoria-South Africa 1978; assistant professor (clinical), Internal Medicine, 1996

Young, Eugene W., B.S. Drake 1954, D.D.S. Iowa

Young, Donald C., B.A. Drake 1951, M.D. Iowa 1955; professor (clinical), Radiology, 1980 (1995)
Young, Mark Alan, A.B. Princeton 1979, Ph.D. California (Berkeley) 1987; assistant professor Chemistry, 1989
Yussen, Steven R., B.A. Houghton 1953, M.D.C.M.

Zabner, Joseph L., M.D. Universidad Central de Venezuela 1987; assistant professor, Internal Medicine, 1995
Zach, Zelma, B.S. Iowa 1959; associate professor emeritus, Dental Hygiene, 1993

Zagel, Milton, M.A. Iowa 1936, Ph.D. 1950; associate professor emeritus, German, 1956 (1978)
Zawady, Donald C., B.A. Wooster 1944, M.D. 1948; assistant professor emeritus, Surgery, 1971 (1975)
Ziska, James H., B.S. College of St. Thomas 1963, M.D. Iowa 1967; clinical assistant professor, Pediatrics, 1976

Zurbriggen, Thomas L., B.S. Iowa State 1974, M.D. Iowa 1978, clinical instructor, Internal Medicine, 1988

The following is extracted from the Board of Regents section of the Iowa Administrative Code as of May 25, 1994.

**Admission Rules 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 $20 application fee for U.S. citizens or permanent residents and a $30 application fee for foreign students, 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.

1.2 (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.

1.2 (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.

1.2 (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.

1.2 (4) Applicants who are not high school graduates, but whose classes have graduated, may be considered for admission. They will be required to submit all academic data to the extent that it exists and achieve scores on standardized examinations which will demonstrate that they are adequately prepared for academic study.

Students with superior academic records may be admitted, on an individual basis, for part-time university study while enrolled in high school or during the summers prior to high school graduation.

In rare situations, exceptional students may be admitted as full-time students to a regent university before completing high school. Early admission to a regent university is provided to serve persons whose academic achievement and personal and intellectual maturity clearly suggest readiness for collegiate level study. Each university will specify requirements and conditions for early admission.

This rule is intended to implement Iowa Code section 262.9(3).

681-1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission 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 $20 application fee for U.S. citizens or permanent residents and a $30 application fee for foreign students, and request that each college they have attended send an official transcript of record to the admissions office. High school academic records and standardized test results may also be required. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English.

1.2 (1) Transfer applicants with a minimum of 24 semester hours of graded credit from regionally accredited colleges or universities, who have achieved for all college work previously attempted the grade point required by each university for specific programs, will be admitted. Higher academic standards may be required of students who are not residents of Iowa.

Applicants who have not maintained the grade point required by each university for specific programs or who are under academic suspension from the last college attended may, after a review of their academic and test records, and at the discretion of the admissions officers:
   a. Be admitted unconditionally,
   b. Be admitted conditionally,
   c. Be required to enroll for a tryout period during a preceding summer session, or
   d. Be denied admission.

1.2 (2) Admission of students with fewer than 24 semester hours of college credit will be based on high school academic and standardized test records in addition to review of the college record.

1.2 (3) Transfer applicants under disciplinary suspension will not be considered for admission until information concerning the reason for the suspension has been received from the college assigning the suspension. Applicants granted admission under these circumstances will be admitted on probation.

1.2 (4) Transfer applicants from colleges and universities not regionally accredited will be considered for admission on an individual basis taking into account all available academic information.

This rule is intended to implement Iowa Code section 262.9(3).

681-1.3(262) Transfer credit practices

The regent universities endorse the Joint Statement on Transfer and Award of Academic Credit approved in 1978 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Counsel on Postsecondary Accreditation (COPA). The current issue of Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and publications of the Council on Postsecondary Accreditation (COPA) are examples of references used by the universities in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies operative at each university.

1.3(1) Students from regionally accredited colleges and universities

Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit in courses determined by the receiving university to be of a remedial, vocational, or technical nature, or credit in courses or programs in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted to a limited extent.

Of the course work earned at a two-year college, students may apply up to one-half but no more than 65 hours of the credits required for a bachelor’s degree toward that degree at a regent university. This policy became effective September 29, 1993.

1.3(2) Students from colleges and universities which have candidate status

Credit earned at colleges and universities which have become candidates for accreditation by a regional association is acceptable for transfer in a manner similar to that from regionally accredited colleges and universities if the credit
is applicable to the bachelor's degree at the receiving university. Credit earned at the junior and senior classification from an accredited two-year college which has received approval by a regional accrediting association for change to a four-year college may be accepted by a regent university.

1.3(3) Students from colleges and universities not regionally accredited

When students are admitted from colleges and universities not regionally accredited, they may validate portions or all of their transfer credit by satisfactory academic study in residence, or by examination. Each university will specify the amount of the transfer credit and the terms of the validation process at the time of admission.

In determining the acceptability of transfer credit from private colleges in Iowa which do not have regional accreditation, the regent committee on educational relations, upon request from the institutions, evaluates the nature and standards of the academic program, faculty, student records, library, and laboratories.

In determining the acceptability of transfer credit from colleges in states other than Iowa which are not regionally accredited, acceptance practices indicated in the current issue of Transfer Credit Practices of Selected Educational Institutions will be used as a guide. For institutions not listed in the publication, guidance is requested from the designated reporting institution of the appropriate state.

1.3(4) Students from foreign colleges and universities

Transfer credit from foreign educational institutions may be granted after a determination of the type of institution involved and after an evaluation of the content, level, and comparability of the study to courses and programs at the receiving university. Credit may be granted in specific courses, but is frequently assigned to general areas of study. Extensive use is made of professional journals and references which describe the education systems and programs of individual countries.

Residence

681-1.4(262) Classification of residents and nonresidents for admission, tuition, and fee purposes

1.4(1) General

a. A person enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, tuition, and fee purposes by the registrar or someone designated by the registrar. The decision shall be based upon information furnished by the student and other relevant information.

b. In determining resident or nonresident classification, the issue is essentially one of why the person is in the state of Iowa. If the person is in the state primarily for educational purposes, that person will be considered a nonresident. For example, it may be possible that an individual could qualify as a resident of Iowa for such purposes as voting, or holding an Iowa driver’s license, and not meet the residency requirements as established by the board of regents for admission, tuition, and fee purposes.

c. The registrar, or designated person, is authorized to require written documents, affidavits, verifications, or other evidence deemed necessary to determine why a student is in Iowa. The burden of establishing that a student is in Iowa for other than educational purposes is upon the student.

A student maybe 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 student who moves to Iowa may be eligible for resident classification at the next registration following 12 consecutive months in the state provided the student is not enrolled as more than a half-time student (6 credits for an undergraduate or professional student, 5 credits for a graduate student) in any academic year term, is not enrolled for more than 4 credits in a summer term for any classification, and provides sufficient evidence of the establishment of an Iowa domicile.

e. A student who has been a continuous student and whose parents move to Iowa may become a resident at the beginning of the next term provided the student is dependent upon the parents for a majority of financial assistance.

f. A person who is moved into the state as the result of military or civil orders from the government for other than educational purposes, or the dependent of such a person, is entitled to resident status. However, if the arrival of the person under orders is subsequent to the beginning of the term in which the student is first enrolled, nonresident fees will be charged in all cases until the beginning of the next term in which the student is enrolled.

Legislation, effective July 1, 1977, requires that military personnel who claim residency in Iowa (home of record) will be required to file Iowa resident income tax returns.

g. A person who has been certified as a refugee or granted asylum by the appropriate agency of the United States who enrolls as a student at a university governed by the Iowa state board of regents may be accorded immediate resident status for admission, tuition, and fee purposes where the person:

1. Comes directly to the state of Iowa from a refugee facility or port of debarkation; or
2. Comes to the state of Iowa within a reasonable time and has not established domicile in another state.

Any refugee or individual granted asylum not meeting these standards will be presumed to be a nonresident for admission, tuition, and fee purposes and thus subject to the usual method of proof of establishment of Iowa residency.

h. An alien who has immigrant status establishes Iowa residency in the same manner as a United States citizen.
a. The following circumstances, although not necessarily conclusive, have probative value in support of a claim for resident classification:

1. Reside in Iowa for 12 consecutive months, and be primarily engaged in activities other than those of a full-time student, immediately prior to the beginning of the term for which resident classification is sought.
2. Reliance upon Iowa resources for financial support.
3. Domicile in Iowa of persons legally responsible for the student.
4. Former domicile in the state and maintenance of significant connections therein while absent.
5. Acceptance of an offer of permanent employment in Iowa.
6. Other facts indicating the student’s domicile will be considered by the universities in classifying the student.

b. The following circumstances, standing alone, do not constitute sufficient evidence of domicile to effect classification of a student as a resident under these regulations:

1. Voting or registration for voting.
2. Employment in any position normally filled by a student.
3. The lease of living quarters.
4. Admission to a licensed practicing profession in Iowa.
5. Automobile registration.
6. Public records, for example, birth and marriage records, Iowa driver’s license.
7. Continuous presence in Iowa during periods when not enrolled in school.
8. Ownership of property in Iowa, or the payment of Iowa taxes.

This rule is intended to implement Iowa Code section 262.9(3).

681-1.5(262) Registration and transcripts - general

A person may not be permitted to register for a course or courses at a state board of regents institution until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent have been paid.

A state board of regents institution may withhold official transcripts of the academic record of a person until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent have been paid.

This rule is intended to implement Iowa Code section 262.9.

Supplemental Rules Specific to The University of Bows

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 by 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. Attained satisfactory scores on the university’s required admission examinations.

c. Maintained a satisfactory grade-point average on all courses undertaken, and on all courses undertaken at the University of Iowa, and on all courses undertaken in business and economics.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimal requirements listed above, however, does not assure admission to the college of business administration. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

681-2.4(262) College of Denistry

2.4(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Applicants should consider a combined program of liberal arts and dentistry which would qualify them for a baccalaureate degree upon the completion of the freshman year in dentistry. Preference will be given to students who have the baccalaureate degree or who have completed the requirements for the degree in a combined program.

Fulfillment of the specific requirements for admission listed does not ensure admission to the college of dentistry. From the applicants meeting the minimum requirements, the admissions committee will select the applicants who in their judgment appear to be best qualified for the study and practice of dentistry.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work outlined below will suffice to meet the minimal academic requirements for admission to the college of dentistry.

The college curriculum must include at least three academic years of accredited work comprising not less than 96 semester hours and including specific required science courses as prescribed by the faculty of the college. Electives should be chosen so as to give the applicant a well-rounded educational background.

In order to meet minimum scholarship requirements, the applicant should attain a cumulative grade-point average of 2.50. 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 – 2.6(262) Graduate College

Graduates of any college or university accredited by regional accrediting associations may if the academic record is satisfactory be admitted to the graduate college. Admission to the graduate college is not the equivalent of acceptance as a candidate for an advanced degree. Such acceptance is given usually after the completion in residence of work at the university and upon recommendation of the major department and approval by the dean of the graduate college. The acceptance of a student as a degree candidate is determined upon the merits of each individual case.

A student who is within 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.

2.6(1) Application for admission

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.

2.6(2) Admission with advanced standing

A transfer student may be eligible for admission if the student (a) has attended a school approved by the Association of American Law Schools; (b) is in good standing at the time of withdrawal (evidenced by a letter from the dean of the school from which transferring); (c) meets the admission requirements for beginning students; and (d) has done substantially above average work in the law school the student attended. Where an applicant has completed more than one year of law study, advanced standing will be permitted only in exceptional cases. Applicants for admission with advanced standing should comply with the procedures required for admission to the first-year class.

681- 2.8(262) College of Medicine

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

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.

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 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 any preparatory work other than medical schools. Students may be granted subject credit upon recommendation of the head of the department concerned, for work taken in other than medical schools.

2.8(3) Unclassified students

Applicants for admission to the college of medicine who are not candidates for a degree but who desire to register for special subjects, will be admitted to any lecture or laboratory course only upon complying with all the regular requirements for admission to such course or by action of the faculty upon recommendation of the professor in charge of the course.

681-2.9(262) College of Nursing

Applications for admission to the college of nursing should be submitted to the Director of Admissions, The University of Iowa, Iowa City, Iowa. Applicants for admission to the undergraduate program in nursing must present a minimum of 30 semester hours completed in an accredited college. For admission to the college of nursing an applicant must have:

1. Completed specific course work as prescribed by the faculty of the college. The director of admissions will provide a list of the course work required.

2. Completed the American College Tests.

3. Performed satisfactorily on all courses undertaken.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and, upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimum requirements listed above, however, does not assure admission to the college of nursing. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

681-2.10(262) College of Pharmacy

2.1 0(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.

2.1 0(2) College work

The college work as outlined below will meet the minimum academic requirements for admission to the college of pharmacy. The minimum should include 32 semester hours of college level work exclusive of credit in military and air science and physical education. The 32 semester hours must include:

Communication skills. Applicants must have demonstrated satisfactory achievement in communication skills according to the requirements of the college of liberal arts at the state University of Iowa. Applicants from other institutions may meet this requirement by presenting six semester hours of credit in English composition and rhetoric and two semester hours of credit in speech or an eight-semester-hour year course in communication skills.

Inorganic chemistry and qualitative analysis, eight semester hours.

College mathematics, eight semester hours.

Physics or zoology, eight semester hours.

Students from other institutions may substitute a comparable eight-semester-hour course in biology in lieu of zoology.

Military or air science (if available), zero to two semester hours.

Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.1 0(3) Scholarship and application deadline

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.

2.1 0(4) Required tests

Applicants for admission are required to take the American College Testing Program test.

2.1 0(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.

601-2.11(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.
Index

For information about the admission requirements, degree requirements, and collegiate policies of the respective colleges, see these pages:

Liberal Arts, 46-275
Business Administration, 276-293
Dentistry, 294-307
Education, 308-349
Engineering, 350-389
Graduate, 390-401
Law, 402-415
Medicine, 416-461
Nursing, 462-469
Pharmacy, 470-475

A
Academic achievement, recognition for, University, 9; Liberal Arts, 62; Business Administration, 278; Engineering, 351; Law, 405
Academic advising offices, 21, 355
Academic programs, 9
Academic records, 16
Academic services, 21
Academic sessions, 9
Accounting, 284
Accounting Research, Ira B. McGladrey Institute of, 34, 283
Accreditation and associations, 9
Actuarial Science, Statistics and, 258
ACT test scores, 13
Administrative Code, Iowa, 516-520
Administrative officers, 478-479
Admission, general, 13; Liberal Arts, 47; Business Administration, undergraduate, 278; graduate (see specific programs), 280-282; Dentistry, 296; Education, 309; Engineering, 352; Graduate, 393; Law, 407; Medicine, 419; Nursing, 464; Pharmacy, 471 (see individual departmental listings for more information)
Advanced Drug Development, Center for, 32
Advanced placement program, Liberal Arts, 53; Engineering, 356
Advanced Reproductive Care, Center for, 34
Advanced Studies, Obermann Center for, 33
Advising; general, 21; Engineering, 355; Nursing, 464 (also see individual program descriptions)
Aerospace Military Studies (Air Force ROTC), 65
Affective Disorders, Collaborative Studies of, 34
African American World Studies, 66
African Studies Program, 70
Afro-American Cultural Center, 23, 68
Aging, Center on, 34
Aging Studies Program, 72, 392, 463
Agricultural Medicine and Occupational Health, Institute of, 34
Agricultural Safety and Health, Iowa’s Center for, 33
AIDS Training and Education Center, Midwest, 34
Alumni Association, The University of Iowa, 45
Alzheimer’s Disease Research Center, 34, 420
American Indian and Native Studies Program, 74, 392
American Sign Language (liberal arts nondepartmental courses), 65
American Studies Program, 75
Anatomy, 422
Anesthesiology, 423
Animal Care Unit, 29
Anthropology, 77
Application deadlines, fees, procedures, 13-15
Applied Mathematical and Computational Sciences, 82, 391
Art and Art History, 41, 83
Art, Museum of, 43
Arts, Iowa Center for the, 41
Arts Share, 94
Asian and Pacific Studies, Center for, 34
Asian Languages and Literature, 92
Associated Medical Sciences, Division of, 423
Associations, 9
Asthma and Allergic Diseases Center, 34
Astronomy, Physics and, 205
Astrology, 205
Athletics, 208
Auditing courses, graduate, 395; liberal arts, 61

B
Biocatalysts and Bioprocessing, Center for, 32
Biomedical Engineering, Iowa Institute of, 34
Biometrical Sciences, 100
Biomedical Engineering, 360
Biomedical Engineering, Iowa Institute of, 34
Biophysics, Physiology and, 451
Biostatistics Consulting Center, 34
Biotechnology Byproducts Consortium, 34
Birth Defects and Genetic Disorders Unit, 34
Birth Defects Registry, Iowa, 33
Bone Healing Research Laboratory, 34
Business Administration, College of, 276-293
Business Administration, College of, 278-293; Accounting, 284; Economics, 286; Entrepreneurial Management, 283; Executive Development Center, 283; Finance, 289; Financial Markets Institute, 283; four-year graduation plan, 277; Industrial Relations Institute, 283; International Business Certificate, 279; Ira B. McGladrey Institute for Accounting Research, 283; Institute for Economic Research, 283; Management and Organizations, 290; Management Center, 283; Management Sciences, 291; Manufacturing Productivity Center, 283; Marketing, 292; School of Management, 290; Small Business Development Center, 283

C
CEU (Continuing Education Unit), 476
Calendar, University, 4
Campus Information Center, 23
Campus Programs and Student Activities, 23
Campus visits, 4, 15
Cancer Center, 34, 420
Cardiovascular Research Center, 34, 420
Career information, placement services, 22; Engineering, 358
Career Development and Cooperative Education, Center for, 22
Caries Research Center, Specialized, 34
Center for the Book, 42, 105, 392 (certificate in book studies/book arts)
Center for International and Comparative Studies (CICS), 34, 36
Centers, 34
Central research facilities, 29
Chemical and Biochemical Engineering, 364
Chemistry, 106
Latino Native American Cultural Center, 23
Child Health Research Center, Iowa, 34
Child Health Services, Specialized, 40
Chinese (Asian Languages and Literature), 92
Cinema and Culture, Institute for, 35, 115
Civil and Environmental Engineering, 368
Classics, 109
Cleft Palate Research Center, 34
Clinical Laboratory Sciences, 426
Clinical Research Center, 34, 420
Cochlear Implant Clinical Research Center, 34
Code of Student Life, 26
Codes, Policies, and Students’ Rights, 26
Collaborative Studies of Affective Disorders, 34
College-Level Examination Program (CLEP), 53
Communication Studies, 112
Communication Study, Iowa Center for, 34
Communication, Journalism and Mass, 169
Comparative Literature, 118
Comparative Legislative Research Center, 34
Comparative Literature, 118
Composition, English (Rhetoric), 223
Computer-Aided Design, Center for, 34, 358
Computer Engineering, Electrical and, 375
Computer-Aided Engineering Network, Iowa, 358
Computer Science, 121
Computer Engineering, Electrical and, 375
Continuing Education, Divisions of, 476-477
Continuing Education, Nursing, 466
Continuing Education, Engineering, 354
Continuing Education, nursing, 466
Continuing Education, Center for, 476
Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development, 34, 311
Continuing Education, Division of, 476-477 (includes Audiovisual Center, Bachelor of Liberal Studies, Center for Conferences and Institutes, Center for Credit Programs, CEU (Continuing Education Unit), correspondence study, Institute of Public Affairs, Labor Center, Media Services, off-campus classes, Saturday & Evening Classes, Video Center)
Continuing Education, nursing, 466
Cooperative Education, 22; Engineering, 354
Cooperative Human Linkage Center, 34
Cooperative Education, 22; Engineering, 354
Correspondence study, 476 (see individual programs for policies on accepting correspondence study for credit toward a degree)
Counseling Service, University, 24
Counselor Education, 313
Council on Speech Pathology and Audiology, 39
Course numbering, 10-11
Craniofacial Anomalies Research Center, 34
Creative writing, 132
Credit by examination, Liberal Arts, 53; Business Administration, 278; Engineering, 356
Credit Programs, Center for, 476
Credit requirements, Liberal Arts, 52
Criminal justice and corrections (Sociology), 238
Cultural centers, 23
Curriculum and Instruction, 316
Cystic Fibrosis Research Center, 34
D
Dance, 42, 125
Dean’s list, Liberal Arts, 9, 62; Business, 278; Engineering, 351
Degrees offered, University, 9; Liberal Arts, 50; Business Administration, 276; Dentistry, 294; Education, 308; Engineering, 350; Graduate College, 391; Law, 403; Medicine, 416; Nursing, 462; Pharmacy, 470
Degree requirements, Liberal Arts, 52
Dental Health Bureau, 39
Dental Service, 40
Dentistry, College of, 294-307; Clinical Management Concepts, 298; combined liberal arts/dentistry program, 296; education and patient care, 297; Endodontics, 298; Family Dentistry, 299; Hospital Family Dentistry, 299; interdisciplinary centers, 297; Operative Dentistry, 300; Oral and Maxillofacial Surgery, 300; Oral Pathology, Radiology, and Medicine, 301; Oral Science, 297; Orthodontics, 303; Pediatric Dentistry, 304; Periodontics, 304; Preventive and Community Dentistry, 305; Prosthodontics, 306
Dermatology, 434
Diabetes and Endocrinology, Core Center, 34, 420
Dietetic Internship, 434
Digestive Diseases, James A. Clifton Center for, 34
Disability Services, Student, 23
Distinction, Degrees with, 9
Division of Associated Medical Sciences, 423
Division of Mathematical Sciences, 184
Dews Institute for Dental Research, 34, 297
Eastman Dental Center, 357
Economic Research Institute, 34, 283
Economics, Business Administration, 286; Liberal Arts, 127
Education, College of, 308-349; Counselor Education, 313; Curriculum and Instruction, 316; financial aid, 312; gifted education and talent development, 311; Iowa Testing Programs, 311; Planning, Policy, and Leadership Studies, 336; Psychological and Quantitative Foundations, 342; Science Education, 229; support units and special resources, 311; teacher education programs (student teaching), 309
Electrical and Computer Engineering, 375
Electron Microscopy Facility, 30
Endodontics, 298
Engineering, College of, 350-389; Biomedical Engineering, 360; Center for Computer-Aided Design, 358; Chemical and Biochemical Engineering, 364; Civil and Environmental Engineering, 368; combined degree with Liberal Arts, 353; combined engineering M.B.A. program, 353; Electrical and Computer Engineering, 375; Engineering Career Services, 358; four-year graduation plan, 351; Industrial Engineering, 379; Institute of Hydraulic Research, 358; Iowa Spine Research Center, 359; Mechanical Engineering, 384
English, 130
English composition (Rhetoric), 223
English as a Second Language (ESL) (Linguistics), 180
English proficiency and admission, 14-15
Entrepreneurship courses, 284
Evening Classes, Saturday & 476
Environmental Engineering, Civil and, 368
Environmental Research, Center for Global and Regional, 33
Evaluation and Assessment, Center for, 34
Evaluation and Examination Service, University, 44
Exemption examinations, Liberal Arts, 53; Engineering, 356
Exercise Science, 136
F
Faculty, 480-515
Fair housing policy, 25
Family-Centered Practice, National Resource Center on, 34
Family Dentistry, 299
Family housing, University, 25
Family Practice, 434
Fees, tuition and, 15
Fermenter Facility, 30
Film, Media Studies and Communication Studies, 112
Film and Critical Studies in Paris, Interuniversity Center for, 391
Finance, 289
Financial aid, 16 (also see individual collegiate and departmental sections)
Financial Markets Institute, 34, 283
Foreign Language Acquisition Research and Education Project, 36
Foreign Language House, 142, 158
Foreign languages offered regularly:
Chinese, 92; French, 141; German, 156; Greek, 109; Hindi, 92; Italian, 141; Japanese, 92; Latin, 109; Modern Greek, 109; Portuguese, 242; Russian, 225; Sanskrit, 92; Spanish, 242; Swahili, 180; Yoruba, 180
Foreign languages offered irregularly:
Arabic, 92; Biblical Aramaic, 220; Biblical Hebrew, 220; Celtic, 130; Gothic, 180; Korean, 92; Middle English, 130, 180; Middle High German, 130, 156; Modern Hebrew, 92; Old English, 130, 170; Old Norse, 130, 180; Turkish, 92
See the above page numbers for more information; also see the current Schedule of Courses for availability.
Foreign students, admission, 14
Foundation, University of Iowa, 45
Four-year graduation plan, 11; Liberal Arts, 49; Business Administration, 277; Engineering, 351
Fraternities, 25
French and Italian, 141

G
Gender, Culture, and Politics, Program in, 36
Gene Transfer, Center for, 34
General Catalog Information, 3
General Education Program (Liberal Arts), 55-60
General services for students, 23
Genetics, 144, 391, 435
Geography, 145
Geology, 151
Geriatric Education Center, Iowa, 34
Gerontology Projects, 34
German, 156
Gifted education (see “Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development”), 34, 311, 363
Global and Regional Environmental Research, Center for, 33
Global Health Program, 36
Global Studies, 159
Guided Correspondence Study, 476
Graduate and professional college examinations, 13
Grading procedures (marking system), 11; Liberal Arts, 61; Engineering, 355; Law, 408
Graduate College, 390-401; certificate programs, 392; degree programs, 391; financial assistance, 393; Graduate Student Senate, 393; joint law and graduate degree programs, 392; joint programs within the Graduate College, 392; rules and regulations, 393
Graduation requirements, Liberal Arts, 52
Grants, faculty, 29 (also see “Sponsored Programs,” 31); student, 18
Greek, 109
Group Processes, Center for the Study of, 34, 239
Gynecology, Obstetrics and, 445

H
Hancher Auditorium, 43
Handicapped (Student Disability Services), 23
Hazardous Substances Research Center, 34
Health Effects of Environmental Contamination, Center for, 32
Health Occupations Education, 40
Health Registry of Iowa, State, 34
Health Sciences, Hardin Library for the, 38, 40
Health Sciences Center, The University of Iowa, 38
Health Service, Student, 24
Health Services Research, Center for, 34, 420, 437
High Field Nuclear Magnetic Resonance Facility, 30
High Resolution Mass Spectrometry Facility, 30
High school preparation, 13
History, 161
Honorary and professional societies, 10
Honors Program, University, 12, 50; Business Administration, 278; Engineering, 351; Nursing, 463
Hospital and Health Administration, 435
Hospital Family Dentistry, 299
Hospitals and Clinics, The University of Iowa, 38
Hospital School, University, 41
Housing, 25
Human Nutrition, 391, 438
Human rights, University policy, 26
Hydraulic Research, Institute of, 34, 358
Hygienic Laboratory, University (State), 40
Image Analysis Facility, 30
Immunology, 391, 438
Industrial Engineering, 379
Industrial Relations Institute, 34, 283
Information Technology Services, 44
Injury Prevention Research Center, 32
Institutes, 34
Institute for Cinema and Culture, 35, 115
Insurance Education and Research, Institute for, 34
Intercollegiate athletics (men’s and women’s), 23-24
Interdepartmental and nondepartmental courses, business administration, 283-284; dentistry, 298; education, 313; entrepreneurship, 284; graduate, 400; liberal arts, 65; medicine, 421; study abroad, 21; University hospitals and clinics, 39
Interdepartmental Studies, 166
Interdisciplinary Activities, Research and, 29
Interdisciplinary Ph.D. programs, ad hoc, 391
Interdisciplinary programs, Liberal Arts, 50
Interdisciplinary programs and centers, Medicine, 420
Internal Medicine, 438
International and Comparative Studies, Center for (CICS), 36
International Business Certificate, 279
International Center, 23
International Communication Studies, Project for, 36
International Development, Program for, 36
International Education and Semites, Office of (OIES), 21
International Rural and Environmental Health, Center for, 34
International Writing Program, 42, 133
Intramural sports and recreational activities, 24
Iowa Administrative Code, 516
Iowa Birth Defects Registry, 33
Iowa Center for the Arts, 41
Iowa Consortium for Substance Abuse Research and Evaluation, 33
Iowa Lakeside Laboratory, 35, 103, 168
Iowa Memorial Union, 24
Iowa Playwrights’ Workshop, 42
Iowa Quaternary Studies Group, 35
Iowa Spine Research Center, 34, 359, 363
Iowa Testing Programs, 34, 311
Iowa’s Center for Agricultural Safety and Health, 33
Italian, French and, 141

J
Japanese (Asian Languages and Literature), 92
Journalism and Mass Communication, 169
Jobs, student, 18

K
KSUI-FM (radio), 45

L
Labor Center, 476
Laboratories, 34
Lakeside Laboratory, Iowa, 35, 103, 168
Language House, Foreign, 142, 158
Languages—see “Foreign languages”
Latin (Classics), 109
Latin American Studies Program, 174
Law, College of, 402-415; academic recognition, 405; financial support, 406; Iowa Law-School Foundation, 410; joint law and graduate degree program, 404; journals, 405; Law School Admissions Test, 407; Law Library, 406; Legal Clinic, 404; placement, 406; Writing Resource Center, 406
Law, Health Policy, and Disability Center, 34
Learning at Iowa, 8
Libel Research Project, Iowa, 34
Liberal Arts Office of Academic Programs, 49
Liberal Arts, College of, 46-275; academic achievement, recognition for, 62; academic probation and dismissal, 63; admission requirements, 47; academic programs office, 49; attendance, final examinations, and student conduct, 63; combined degree with College of Engineering, 51; Dean’s List, 62; degrees, 50; double majors, 50; early admission to Medicine and Dentistry, 51; four-year graduation plan, 49; General Education program, 55-60; grading procedures, 61; graduation requirements, 52;
honors interdisciplinary major, 50; interdisciplinary opportunities, 50; majors, 50; major requirements, 54; majors in education (teaching Licensure), 50; military service credit, 52; minors, 51, 54; multiple bachelor’s degrees, 52; nondepartmental courses, 65; President’s List, 62; registration, 60; specializations within degree programs, 50
Liberal Studies, Bachelor of, 175, 476
Libraries, University, 37
Library and Information Science, 176
Library, health sciences (see Hardin Library for the Health Sciences), 38, 40
Library, Iowa Law, 406
Linguistics, 180
Literature, Science, and the Arts, 183
Loans, student, 18

M
Macbride Nature Recreation Area (see “Outdoor Recreation”), 24
Majors; Liberal Arts, 50; Graduate College, 391
Management and Organizations, 290
Management Center, 283
Management Sciences, Division of, 184
Mathematics, 185
Mathematics Tutorial Lab, 22
Mechanical Engineering, 384
Media Services, 476
Media studies and film (Communication Studies), 112
Medical information for students, 15
Medical Scientist Training Program, 392, 417, 440
Medical technology (see Clinical Laboratory Sciences)
Medicine, College of, 416-46 1; Anatomy, 422; Anesthesiology, 423; Associated Medical Sciences, Division of, 423; Biochemistry, 431; combined M.D.-master’s degree programs, 417; Clinical Laboratory Sciences, 426; Dermatology, 434; Dietetic Internship, 434; Family Practice, 434; Genetics, 435; Hospital and Health Administration, 435; Human Nutrition, 438; interdisciplinary programs and centers, 420; Immunology, 438; Internal Medicine, 438; Medical Scientist Training Program, 417, 440; Microbiology, 441; Molecular Biology, 443; Neurology, 444; Neuroscience, 444; Nuclear Medicine Technology, 426; Obstetrics and Gynecology, 445; Ophthalmology, 446; Orthopedic Surgery, 446; Otolaryngology-Head and Neck Surgery, 447; Pathology, 447; Pediatrics, 449; Pharmacology, 450; Physical Therapy, 427; Physician Assistant Program, 430; Physiology and Biophysics, 451; Preventive Medicine and Environmental Health, 452; Psychiatry, 458; Radiation Biology, 458; Radiology, 459; research facilities, 421; Surgery, 460; Urology, 461
Mental Health Clinical Research Center, 34, 420
Mental Health Services Training and Research, Iowa Consortium for, 34
Microbiology, 190, 441
Military Science (Army ROTC), 192
Minors (Liberal Arts), 51
Molecular Biology, 193, 392, 443
Museum of Art, 43
Museum of Natural History, 44
Museum Studies, 194
Music, 42, 194

N
Natural History, Museum of, 44
Neurology, 444
Neuroscience, 202, 392, 444
New Music, Center for, 34, 42, 198
News Service, University, 45
Night classes (see “Saturday & Evening Classes”), 476
Nondepartmental and interdepartmental courses, business administration, 283, 284; dentistry, 298; education, 313; entrepreneurship, 284; graduate, 400; liberal arts, 65; medicine, 421; study abroad, 21; University hospitals and clinics, 39
Nondiscrimination statement, 3
Nuclear Magnetic Resonance Facility, High Field, 30
Nuclear Medicine Technology, 426
Numbering of courses, 10-11
Nursing Classification, Center for, 34
Nursing, College of, 462-469; admission, 464; Preventive and Community Dentistry, 305

O
Oakdale Research Campus, 31, 40
Oakdale Research Park, 32
Obermann Center for Advanced Studies, 33
Obstetrics and Gynecology, 445
Off-campus classes, 476
Off-campus housing, 25
Old Capitol, 44
Ombudsperson, University, 26, 45
Operative Dentistry, 300
Ophthalmology, 446
Optical Science and Technology Center, 33
Oral and Maxillofacial Surgery, 300
Oral and Maxillofacial Implant Center, 34, 297
Oral Mucosal Disease in Aging Center, 34
Oral Pathology, Radiology, and Medicine, 301
Orientation Services, 15
Orthodontics, 303
Orthopedic Biochemistry and Cell Biology Laboratory, 34
Orthopedic Biomechanics Laboratory, 34
Orthopedic Surgery, 446
Otolaryngology-Head and Neck Surgery, 447

P
Part-time jobs, for students, 18
Pathology, 447
Pediatric Dentistry, 304
Pediatric Nephrology and Urology, Center of Excellence in, 34
Pediatrics, 449
Perinatal Research Laboratory, 34
Periodontics, 304
Pharmaceutical Service, 34
Pharmacology, 450
Pharmacy, College of, 470-475; admission, 471
Philosophies and Ethics of Politics, Law, and Economics, 202
Philosophy, 203
Photonics and Quantum Electronics, Laboratory for, 34
Physical Education Skills, 205
Physical Therapy, 427
Physician Assistant Program, 430
Physics and Astronomy, 205
Physiology and Biophysics, 451
Placement Office, 22; Education, 311; Engineering, 358; Law, 406
Planning, Policy, and Leadership Studies, 336
Playwrights’ Workshop, Iowa, 42
Political Science, 210
Portuguese, Spanish and, 242
Presidential Scholarships, 17
President’s List, general, 10; Liberal Arts, 62; Business Administration, 278; Engineering, 351
Preventive and Community Dentistry, 305
Preventive Intervention Center, 34
Preventive Medicine and Environmental Health, 452
Printing Department, 45
Probation and dismissal, Liberal Arts, 63; Engineering, 355
Professional improvement, Nursing, 466
Professional societies, Honorary and, 10
Project on Rhetoric of Inquiry (POROI), 35
Prosthodontics, 306
Psychiatry, 458
Psychological and Quantitative Foundations, 342
Psychology, 214
Public Affairs, Institute of, 477
Public Policy Center, 33
Publications, University Relations, 45
Quality Health Care, Institute for, 34
Quality Management and Productivity, 392
Quaternary Studies Group, Iowa, 35
Radiation Biology, 458
Radio broadcasting services (WSUI, KSUI-FM), 45
Radiology, 459
Reading Lab, 22
Recent History of the United States, Center for the Study of, 34
Records, 16
Recreational Services, Division of, 24
Refund schedule, 16
Regents Exchange Program, 16
Registrar, 22
Registration, 15
Religion, 220
Research and Interdisciplinary Activities, 29
Research Campus, Oakdale, 31
Research Foundation, University of Iowa, 32
Reserve Officers Training Program (ROTC); Air Force, 65; Army, 192
Residence, determining, 14, 517
Residence halls, 25
Rhetoric, 223
Rhetoric of Inquiry, Project on (POROI), 35
Rhetorics of Inquiry (certificate program), 224, 393
Rhetorical Studies (Communication Studies), 112
Ronald McDonald House, 40
Rural and Environmental Health, Institute for, 34
Rural Education Policy and Planning, Office for, 34
Russian, 225
Russian, East European, and Eurasian Studies, 227

$ SAT test scores, 13
Sacred Music (certificate program), 198, 393
Sanskrit (Asian Languages and Literature), 92
Saturday & Evening Classes, 476
Scholarships, 17
Science Education, 229
Science Education Center, 34
Second degree (two bachelor’s degrees), engineering, 354; liberal arts, 52
Second-grade-only option, business administration, 279; engineering, 356; liberal arts, 62
Services, academic, 21
Services, general, 44
Sessions, academic, 9
Sexual harassment, policy on, 26
Sign Language, American (liberal arts nondepartmental courses), 65
Small Business Development Center, 34, 283
Social Science Institute, 31
Social Studies, 232
Social Work, 233
Sociology, 238
Sororities, 25
South Asian Studies Program, 36
Spanish and Portuguese, 242
Special Resources at Iowa, 28
Special Support Services, 23
Specialization within degree program, Liberal Arts, 50
Specialized Child Health Services, 40
Speech and Hearing Clinic, Wendell Johnson, 41
Speech Pathology and Audiology, 248
Speech Pathology and Audiology, Council on, 39
Spine Research Center, Iowa, 34, 359, 363
Sponsored Programs, 31
Sport, Health, Leisure, and Physical Studies, 253
State Archaeologist, Office of the, 35
State Health Registry of Iowa, 34
State hygienic lab (see “University Hygienic Laboratory”), 40
Statistical Consulting Center, 31, 262
Statistics and Actuarial Science, 258
Student accounts, payment of, 16
Student Activities, Campus Programs and, 23
Student complaints concerning faculty actions, 26; Engineering, 357
Student Disability Services, 23
Student Health Service, 24
Student Life at Iowa, 20
Student rights, 26
Student teaching, 309
Study Abroad, 21
Substance Abuse Research and Evaluation, Iowa Consortium for, 33, 34
Surgery, 460

T Teacher licensure/certification services, 310
Teacher education programs (student teaching), 309
Technology Innovation Center, 32
Telecourses (Off-Campus Classes), 476
Testing Programs, Iowa, 34, 311
The Iowa Center for the Arts, 41
The University of Iowa Health Sciences Center, 38
Theatre Arts, 43, 263
Theatres, University, 43, 263
Third World Development Support, 266, 392
Transcripts, 23
Transfer students, Liberal Arts admission, 47, 48, 53
Translation Laboratory, 34
Transportation Studies, 268, 393
Tuition and fees, 15
Tutorial labs, 22
Two bachelor’s degrees (second degree), engineering, 354; liberal arts, 52

U Undergraduate Academic Advising Center, 21, 355
Undergraduate Scholar Assistantships, 10
Unified Program, 57, 270
University calendar, 4
University Honors Program, 12
University Hospital School, 41
University hospitals, 38
University Libraries, 37
University of Iowa Alumni Association, 45
University of Iowa Foundation, 45
University of Iowa Research Foundation, 32
University of Iowa Health Sciences Center, 38
University of Iowa Press, 45
University ombudsperson, 26, 45
University Relations, Office of, 45
University (State) Hygienic Laboratory, 40
University Theatres, 43, 263
Urban and Regional Planning, 270, 392
Urban Community Research Center, Iowa, 34
Urology, 461

V
Veterans Affairs Medical Center, 41
Veterans Services, 24
Video Center, 477
Voice and Speech, National Center for, 34

W
WSUI (radio), 45
Wendell Johnson Speech and Hearing Clinic, 41
Weekend classes (see “Saturday & Evening Classes”), 476
Women’s Resource and Action Center, 24
Women’s Studies, 273
Writers’ Workshop, 42, 132 (Creative Writing), 133
Writing, creative, 132
Writing-English composition (Rhetoric), 223
Writing Lab, 22
Writing programs, 42, 133