The University of Iowa General Catalog 1992-94

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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 purchased 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 forms, and which courses are offered in a particular semester is printed in the Schedule of Courses which is available before each term begins. The publication This Is Iowa also includes information on admissions, fees, scholarships, student financial aid, housing, and student personnel services.

The University of Iowa does not discriminate on the basis of race, national origin, color, creed, sex, age, or disability. The University also affirms its commitment to providing equal opportunities and equal access to University facilities without reference to affectional or sexual orientation or gender identity or expression. For additional information on nondiscrimination policies, contact the Coordinator of Title IX and Section 504 in the Office of Affirmative Action, telephone 515-337-1510, The University of Iowa, 222 Jesse Hall, Iowa City, Iowa 52242-1316.
University Calendar

Fall Semester

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Campus Visits

The best introduction to The University of Iowa is a visit to the campus. Come first to the John C. Bowman House Administration 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 to arrange for a campus visit: toll free 1-800-553-4092, nationwide; direct dial 319-335-3647.
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What Iowa Is All About
The University of Iowa is a major national research university with a solid liberal arts foundation. Founded in 1847 as Iowa’s first public institution of higher education, it has won international recognition for its wealth of achievements in the arts, sciences, and humanities. Iowa was the first U.S. public university to admit men and women on an equal basis and the first institution of higher education in the nation to accept creative work in theater, writing, music, and art as means for advanced degrees. It established the first law school west of the Mississippi, broadened the world’s first educational television program, and developed and continues to hold prominence in educational testing.

The home of pioneering space research, Iowa has designed and built research instruments carried aboard many major U.S. space missions, including the Galileo spacecraft currently on a six-year journey to Jupiter. Its research in materials engineering is world renowned, as are its innovations in biotechnology, biomedical engineering, agricultural medicine, and pharmacology education. The University has one of the most extensive research library systems in the country and operates the nation’s largest university-owned teaching hospital.

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 university research and teaching. It places strong emphasis on undergraduates, international, interdisciplinary education and research, graduate and professional students, together with distinguished teachers and scholars in a close-knit, intellectual community.

Liberal Arts at Iowa: Education for Life

A program of study in the liberal arts is considered “education for life” at The University of Iowa. The College of Liberal Arts has the largest enrollment among the University’s ten colleges and is the college in which 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 research, review, and oversight of graduate programs.

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

The University reaches out to all segments of society. It seeks students who high school seniors, yet at the same time it serves a broad cross-section of students. Approximately 28,000 students enroll at Iowa during fall and spring semesters. Nearly 70 percent come from Iowa, 18 percent from adjoining states, and 6.5 percent from the remaining states. International students from 10 foreign countries make up 5.5 percent of the University’s enrollment.

Wealth and Diversity of Programs, Services

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

The University of Iowa Hospitals and Clinics serves more than 400,000 patients from Iowa and other states every year. Specialized care is provided by more than 1,200 physicians and dentists, 1,200 registered nurses, and 3,200 professional and support staff. Teams of faculty, clinical support specialists, and students study and treat in their care for patients. University Hospitals and Clinics keeps in close touch with community hospitals and health professionals throughout the state, continuously sharing new knowledge with them.

In athletics, the Iowa Hawkeyes enjoy national recognition and recruiting top talent as leaders in football, basketball, wrestling, field hockey, swimming, and gymnastics. A member of the Big Ten athletic conference, Iowa often competes intercollegiate sports for women and men.

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

Overtaking 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 capital building for Iowa’s territorial government 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 1970.

A major attraction and educational facility is the University of Iowa, a 6,000-square-foot art gallery in the Museum of Natural History in MacMillan that presents life-size replicas of various species from Iowa’s four billion years of natural history. The museum itself boasts more than one million specimens of plant and animal life.

In addition to the Iowa City campus, there are University research and field study facilities at nearby Okoboji, at the MacMillan Nature Reserve area north of Iowa City, and at the Lake Okoboji on Lake Okoboji in northeastern Iowa.

Iowa City

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

A community of about 65,000 people, Iowa City lies within 300 miles of Chicago, Minneapolis, and St. Louis. The city is accessible by air, rail, and bus. The Cedar Rapids airport, by major bus lines, and by car from major highways.
ACADEMIC PROGRAMS

The University of Iowa is one of Iowa's three major 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 45 percent of it and more than 50 departments and programs. It is closely linked with the 12 other colleges on campus in the Colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing, and Pharmacy, and with the Graduate College. All ten colleges are located on the Iowa City campus.

The University faculty includes some 1,600 full-time members, many of whose 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 students enroll in a broad area divided between men and women. Approximately three out of four undergraduates are Iowa residents. The rest are students from the other 49 states and more than 70 foreign countries.

About 75 percent of the University's entering freshmen had a 3.0 average or above in high school. Approximately 10 percent ranked in the upper half of their high school classes and about 20 percent ranked in the upper tenth.

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

Refusing a growing trend toward linking 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 internships, study abroad programs, continuing education programs for professionals, Saturday evening classes offered on campus and credit courses taught off-campus. In 1977 the University, in cooperation with Iowa's other two state universities, launched a new 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 degree. 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 Criminal Justice, 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 affiliated with the Indiana, Michigan State, Northwestern, Ohio State, Pennsylvania State, and Purdue universities and the Universities of Illinois, Michigan, Wisconsin, and Wisconsin in the Western (Big Ten) Conference. Along with the Big Ten universities, it is also a member of the University of Chicago in the Committee for Institutional Cooperation (CIC).

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

Colleges

Business Administration—American Assembly of Collegiate Schools of Business

Dentistry—Commission on Dental Accreditation

Law—American Bar Association; Association of American Law Schools

Medicine—United States Commission on Medical Education, representing the American Medical Association; Liaison Committee of 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, Mechanical, and Environmental, Electrical, and Computer, Industrial, and Mechanical Engineering—Engineering Accreditation

The Commission of the Accreditation Board for Engineering and Technology (ABET)

Chemistry—American Chemical Society

Geodesy Education—Council for Accreditation of Counseling and Related Educational Programs

Dental Hygiene—Commission on Dental Accreditation

Dentistry—American Dental Association

Hospital and Health Administration—Accrediting Commission on Education for Health Service Administration

Leisure Studies—Council on Accreditation of the National Park and Recreation Association

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

Physiology—American Psychological Association

Speech-Language 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 15 weeks each. The University Registrar's summer session and, following that, an independent Study Unit of from one to three addition weeks for students in the Graduate College and the College of Law.

Academic Recognition

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

All Undergraduate Colleges (except Pharmacy)

Highest distinction—highest 2 percent
High distinction—next highest 3 percent
Distinguished—next highest 5 percent
College of Pharmacy

Highest distinction—grade-point average of 3.75 and above
High distinction—grade-point average of 3.50 to 3.74
Distinguished—grade-point average of 3.25 to 3.49
Dean's List
Liberal arts students who achieve grade point averages of 3.50 or above during a given semester and who reach a cumulative grade point average of 3.50, will have their names published in the Dean's List of that semester.

President's List
Undergraduate students who achieve grade point averages of 4.00 for two consecutive semesters or 12 or more semester hours of graded work and who have no hours of I or O grades are recognized by inclusion in the President's List.

Undergraduate Scholarships
For students who rank in the top one percent among undergraduates at the University, Undergraduate Scholarships provide a limited number of students with an opportunity to do scholarly work with faculty members from all areas of the University on projects that range from art to Spanish, from music to medicine.

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 largest renewal from this hour-a-week appointment is the working relationship student form faculty member and the implementation of the major to honor important teaching and research activities. As long as they maintain superior performance, awards may be extended to continue their work throughout their college careers, allowing time 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.

University Honors Program
The University of Iowa Honors Program offers special academic and extracurricular opportunities to outstanding students in the Colleges of Business Administration, Education, Engineering, Liberal Arts, Nursing, and Pharmacy. Freshmen and sophomores may take special College of Liberal Arts honors courses, which are taught at a level and pace appropriate to honors students.

Students can earn credits for courses that do not have honors sections through special arrangements with the professor (for example, by completing a special project). With permission from the University Honors Program and faculty, any course can be designated as "honors course" and the credit so noted on the student's transcript.

Seminars and courses in the honors program, who wish to work individually with faculty in research, are invited to apply to the Honors Research Council. Each semester a member with a faculty member selected Research interests are completed in seminars, which serve as academic credit for the course 140:100 Honors Research Practicum.

Seniors with an interest in exploring the teaching aid of an academic career are invited to apply to the Honors Teaching Internship. Each such student completes an academic credit worth for the course 140:101 Honors Teaching Practicum.

In the junior and senior level, more departments with honors seminars, independent research, and the opportunity to pursue an original senior project under the guidance of a faculty member. Honors students are required to explore the option of designing their own honors Interdisciplinary major. The primary components of the major may be a plan of study, which is a carefully crafted pattern for the major, and 36 semester hours of approved course work, including a senior honors thesis to conduct research and complete a senior honors thesis project that exemplifies an interdisciplinary approach. The components are developed by the student with guidance from departmental faculty advisors and the honors director.

Successful completion of agreement honors requirements of all or too of the requirements for the honors interdisciplinary major 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 recognition are available at the University. In recognition is a week in the spring.

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

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

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

To remain in the program, students must maintain a 3.20 grade point average.

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

The following are University Honors Program courses:

- 140:100 Honors Research Practicum
- 140:101 Honors Teaching Practicum
- 140:187 Honors Internship Practicum

University Honors Program

Graduate (Definitive)
Grade points
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

* Required
* Honors
* I = acceptable
* 1 = non- Honors
* 0 = no credit
* F = failed
* S = Satisfactory (Graduate College Only)
* W = Withdrawal

* Not used in computing grade point averages

Graduate grade-point averages displayed at the bottom of students’ grade reports are rounded so as not to exceed 4.00. The College of Law uses a nuanced grading system.

Numbering of Courses

Each course in the regular University curriculum has an identifying number, preceded by the number of the college, department, or program that administers the course. For example, “151” is the code for the course number 151 in the Department of Biological Science, and identifies “Introduction to Biology.”

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 graduate.

Learning at Iowa • Academic Programs
ADMISSIONS

High School Preparation

Appropriate academic preparation for college work 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 program of their choice. Students entering the University must have completed the following core of high school courses (and their equivalents). These high school units requirements apply to entering freshmen who graduated from high school after 1985; honors and foreign students who graduated from high school after 1985; and honors and foreign students who graduated from high school after 1985.

ACT and SAT Scores

All entering freshmen and undergraduate transfer students who present fewer than 34 semester hours of transferable credit who graduated from high school after 1985; honors and foreign students who graduated from high school after 1985; and honors and foreign students who graduated from high school after 1985 must present a minimum SAT score of 960 (Critical Reading + Writing + Math) or an ACT score of 21.

ACT and SAT scores are used in the admission process to determine the likelihood of a student's success in college. The scores are used to identify students who may need additional support to succeed in college. The ACT and SAT scores are used in the admission process to determine the likelihood of a student's success in college. The scores are used to identify students who may need additional support to succeed in college.

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 deadline.

Application Deadlines

For the fall semester, October 15 for fall semester, November 15 for spring semester.

Contact Information

For more information, visit the University of Iowa College of Education website or contact the Office of Admission at 800-248-7246 or email admission@uiowa.edu.
Determing Residence

For admission, tuition, and fee purposes, the University registrar classifies all students enrolled at the University as residents or nonresidents of Iowa according to criteria established by the State Board of Regents and on the basis of information provided by the student. The criteria may be found under "Iowa Administration" Board of Regents" at the back of the Catalog.

English Proficiency

Non-Native Speakers

The University's English proficiency requirement assumes 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.

All applicants to the University whose native language is not English are required to submit scores on the Test of English as a Foreign Language (TOEFL) with their applications for admission and supporting academic documents. Automatic waivers from this policy are granted for persons who have received a bachelor's or equivalent degree from a university in the United States, the United Kingdom, Canada (including French Quebec), Australia, or New Zealand.

U.S. Citizens and Permanent Residents

U.S. citizens and permanent residents whose native language is not English are required to submit scores on the TOEFL before registering for courses. English proficiency exams are made in the cases of:

graduates of high schools whose ACT composite score is 24 or above (SAT combined score of 1090 or above) and whose ACT English subscore is 21 or above (SAT 430) and

inhabitants of Iowa whose ACT composite score is 25 or above (SAT combined score of 1150 or above) and whose ACT English subscore is 24 or above (SAT 470).

Admitted applicants whose TOEFL scores are 600 or above may begin academic coursework work without restriction. Those whose TOEFL scores fall below 600 will be required to complete additional English language proficiency examinations before they register for courses. Applicants seeking exceptions are directed to the coordinator of English as a Second Language.

Foreign Students

Undergraduate Applicants—Regular Admission

A minimum TOEFL score of 520 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 520 or above may begin academic coursework without restriction. Applicants whose academic credentials indicate that they should be admitted, but whose TOEFL scores fall between 530 and 599 are required to complete an English proficiency evaluation before their first registration for courses.

Based on the results of the evaluation, these students may be allowed to take a full academic course load, excluding English as a Second Language (ESL) courses, be required to enroll in an ESL bearing credit earning ESL course or be required to enroll in the Iowa Intensive English Program until their English 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 520, may be considered for conditional admission to the College of Liberal Arts. At space permits, conditionally admitted students enrolled in the Iowa Intensive English Program for up to one year. To change their admission status from conditional to regular is for the student to demonstrate a satisfactory grade in a degree program, students must obtain a minimum TOEFL score of 530 and complete an English language proficiency evaluation. Based on the results of the evaluation, these students may be allowed to take a full academic course load, excluding English as a Second Language (ESL) courses, be required to enroll in an ESL bearing credit earning ESL course or be required to continue in the Iowa Intensive English Program until their language proficiency reaches an appropriate level.

Students 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 (IEP). Students who complete IEP conditional admission to the College of Liberal Arts do not have any guarantee of admission to an academic program at The University of Iowa.

Applications for IEP should be submitted two months before the beginning of the term to begin English as a Second Language.

For more information on IEP applications materials, write to the Iowa Intensive English Program at The University of Iowa.

Graduate Applicants

A minimum TOEFL score of 530 is required for admission to the Graduate College. There is no conditionally admission to the Graduate College whose TOEFL scores are below 530. Newly admitted graduate students whose TOEFL scores fall below 500 are required to complete an English language proficiency evaluation before their first registration for courses. Some departments may require students with an TOEFL score below 500 to complete an English language proficiency evaluation before their first registration for courses. Some departments may require students with an TOEFL score below 500 to complete an English language proficiency evaluation before their first registration for courses.

For more information on IEP applications materials, write to the Iowa Intensive English Program at The University of Iowa.
Graduate students should consult their departmental administrators to determine whether or not they should enroll in course work in English as a Second Language.

**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-bearing courses in English as a Second Language or in the statewide 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 upon meeting the academic advisor's recommendation and 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 recently been admitted, it is advisable to contact the attending physician and report to the Student Health Service so that continuing care can be provided.

**Campus Visits**

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

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

Campus visits start at the J. G. Stranm House Administration Visitor Center. Contact the Office of Admissions to arrange a visit.

**Orientation Services**

With the aid of representative students, faculty, and administration, various design and conduct 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 expected to complete 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 advisors, complete their first registration, and become acquainted with faculty, staff, and other students. Parents are encouraged to attend open house registration orientation sessions conducted concurrently with the student programs.

Prospective and transfer students admitted for the fall semester attend an orientations/registration program during the summer or just prior to the start of classes. Students admitted for the spring semester attend a seminar in December or during the week preceding the start of the semester. Students admitted for the summer session attend an orientation program the Sunday before classes begin in June.

**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 requirements.

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

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

**Records**

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

**Regents Exchange Program**

University of Iowa students may take courses at either of the other two Regents universities for University of Iowa resident credit. Regular, degree-seeking students in good standing in 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 accepted as resident credit at the home institution.

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

**TUITION AND FEES**

The University's schedule of tuition and fees for full-time students, per semester, for the academic year 2002-03 is stated below.

- Extension courses are $518 per semester hour for graduate students and $418 per semester hour for nondegree-seeking students. These courses are offered on a per-semester-hour basis.

Correspondence courses are $87 per semester hour. All fees are subject to change at the discretion of the Board of Regents.

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Casual 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 athletics events and theater productions and to performances by visiting major and concert artists, subscriptions to the student newspaper, The Daily Iowan, delivery to housing units, certain student hospital services, and other activities and services as announced.

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

**Registration**

All persons who intend University classes must first be admitted to the University and are required to register and pay the establishment and term fee. Students in the Communication College and the College of Business Administration, Engineering, Liberal Arts, Pharmacy, Veterinary Medicine, and Nursing may audit courses with proper approval. The College of Human Medicine and Dental Medicine, programs are assessed a fee based on the lowest number of
semester hours for which the course is offered that semester.

Payment of Student Accounts
The University makes a monthly bill for each student so an approved address. The bill includes charges incurred for tuition, fees, board, and other expenses on residence halls and meal plans; enrollment in parking permits; library and printing fees; and other departmental charges. Tuition and fees are billed three times each semester and once during the summer session. Tuition and fee adjustments occur on a monthly basis.

Refund Schedule
Students who withdraw registration during a regular semester receive refunds of less than 50 percent of the total fees at the time of withdrawal. All withdrawals are subject to the policies stated in the university's academic catalog and the terms of any financial aid awards.

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 65 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

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

To determine eligibility for need-based aid, students and parents must provide documentation describing their financial situation. Students must submit the Family Financial Aid Statement (FFS) to American College Testing (ACT), the Financial Aid Form (FAF) to the College Scholarship Service (CSS), or SINGILEURS to Student Aid Filing (ISAF) as soon as possible, and they should have the agency send a copy of the need analysis to the University’s Office of Student Financial Aid.

Filing the FFS, FAF, or SINGILEURS 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 FFS, FAF, or SINGILEURS may be obtained from high school and community college counselors. The FFS, FAF, and SINGILEURS are good for only one academic year. Students must apply for aid each year.

How Aid Is Determined

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

- The University calculates the estimated costs for an academic year; these include tuition, fees, books, room and board, transportation, and personal expenses.
- ACT, CSS, and ISAF use a federally mandated formula to determine how much of the student aid and how the student's financial aid will be distributed.
- Financial aid is determined by subtracting the expected family contribution from the estimated costs for an academic year at the University.
- Where possible, financial aid is awarded toward meeting the student's financial need; however, due to the large number of applications and the limited funds available, it is usually not possible to offer enough assistance to meet the financial need in full.

Eligibility for Aid

Students are eligible for various 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 FFS, FAF, or SINGILEURS.

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 20 semester hours per academic school year (fall, spring, and summer sessions combined); graduates must earn 12 semester hours per academic school year.
- Minimum Grade-point Average: Undergraduates and graduates must maintain the minimum grade-point average required by the colleges in which they are enrolled.

Duration of Eligibility: Undergraduates must complete their bachelor’s degree within six academic school years (12 semesters) or 124 semester hours; graduates working toward master’s degrees must complete their program of study within four academic school years (eight semesters) or 48 semester hours; graduates working toward combined master’s/doctorate degrees must complete their programs of study within eight academic school years (16 semesters) or 96 credit hours.

Financial aid eligibility is canceled for one or more of the following reasons: exceeding 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 described in detail in the publication Reasonable Academic Progress Standards, available at the Office of Student Financial Aid.

Scholarships

Presidential Scholarships

The University annually awards Presidential Scholarships to 20 high school students in recognition of their outstanding high school achievements. The scholarships include lifetime tuition, as well as room and board, and are renewable for a maximum of four years, provided that the student maintains a 3.00 grade-point average at the University.

For further information, students should contact their high school guidance counselor or the Office of Admissions.

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, renewable award. Applications 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 Academic Scholarships are the University’s highest scholarships awarded for entering minority freshmen. The scholarships include on-campus residence, as well as room and board, and are renewable for a maximum of four years, provided that the student maintains a 3.00 grade-point average at the University. Opportunity at Iowa Academic Scholarships are awarded on the basis of exceptional talent in the Opportunity at Iowa Academic Scholarship competition. Each scholarship carries an award of full-time tuition, which may be renewed for a total of four years, provided that the student maintains a 3.00 grade-point average at the University. Application information is available from the Office of Admissions or from high school guidance counselors.

National Merit Scholarships

The University offers National Merit Scholarships to all high school graduating seniors who have attained finalist status in the National Merit Competition. Students may receive up to four years. The minimum award is $250. Awards range from $750 to $2,000, based on financial need. The FFS, FAF, or SINGILEURS determine 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

Under the tuition scholarships are institutional funds awarded on the basis of financial need and academic achievement. 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. Upperclassmen or transfer students must have at least a 3.0 cumulative grade-point average to qualify for the scholarship. 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 PFS, FAF, or SINGLEFLE determines financial need.

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 PFS, FAF, or SINGLEFLE and obtain the LaVerne Noyes application from the Office of Student Financial Aid. Application deadline is May 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, and live on or off a farm operated by their parents. Students must file the PFS, FAF, or SINGLEFLE. Applications are available from the Office of Student Financial Aid and must be submitted by April 1.

Grants

Pell Grants

Undergraduate students without bachelor's degrees may apply for Pell Grants. These awards are determined by $5,970 per 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 PFS, FAF, or SINGLEFLE determines eligibility for Pell Grants.

Supplemental Educational Opportunity Grants (SEOG)

The SEOG provides federal aid to undergraduate students without bachelor's degrees who show exceptional financial need. The amount of the grant varies depending on financial need and federal funding. Recipients must be enrolled at least half-time. The PFS, FAF, or SINGLEFLE determines eligibility for this program.

Educational Opportunity Program (EOP) Grants

Institutional funds are awarded to minority students who show exceptional financial need. Parental income and asset information must be reported. The PFS, FAF, or SINGLEFLE determines eligibility for this program.

Iowa Grant

The Iowa Grant is a state-supported program awarded on the basis of academic achievement and financial need to undergraduate Iowa residents. The PFS, FAF, or SINGLEFLE determines eligibility for this program.

IMAGES

The Iowa Minority Academic Grants for Economic Success (IMAGES) is a program for minority undergraduates with financial need. The program is funded by the Iowa legislature. Preference is given to residents of Iowa. The PFS, FAF, or SINGLEFLE determines eligibility for this program.

Loans

Perkins Loans

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 PFS, FAF, or SINGLEFLE determines eligibility for these loans.

Stafford Loans

Stafford Loans are low-interest loans made to students by lenders such as banks, credit unions, or savings and loan associations. These loans are insured by a guarantee agency in each state and reimbursed by the federal government. Recipients must be enrolled at least half-time. The interest rate is 7.9 percent per year. Repayment begins when recipients cease to be at least half-time students. The PFS, FAF, or SINGLEFLE determines eligibility for these loans. Applicants must submit a Stafford Loan application, which is available from the lending institution.

PLUS Loans and Suplemental Loans for Students (SLS)

PLUS loans are for parent borrowers, and the SLS is for students. Both loans provide additional funds for educational expenses. PLUS and SLS applications are available from banks, credit unions, and savings and loan associations. The loans have a variable interest rate that is adjusted each year. SLS borrowers must file the PFS, FAF, or SINGLEFLE.

Health Professions Student Loans

Health Professions Student Loans are long-term federal loans for students enrolled full-time in the College of Medicine, Dentistry, or Pharmacy. Awards are available in federal funding. The interest rate is 5 percent. The PFS, FAF, or SINGLEFLE determines eligibility for this program.

Running Student Loans

Long-term federal loans are available for students enrolled at least half-time in the College of Nursing. Amounts available depend on federal funding. Repayment begins six months after recipients cease to be at least half-time students. Interest is 5 percent. The PFS, FAF, or SINGLEFLE determines eligibility for these loans.

Jobs

Part-Time Jobs

Student part-time employment can provide a meaningful work experience as well as assist in meeting educational expenses. The University of Iowa estimates nearly 11,000 students in at least half of positions. Contacting human resources is obvious, the jobs offer student the opportunity to increase skills, gain experience, and earn money.

Student part-time employment is limited to 20 hours per week throughout the academic year and 40 hours per week during the summer semester. The minimum wage paid by the University is $6.50 per hour. Students employed on an hourly basis are paid by check once every two weeks. Jobs are advertised via computer terminals across campus.

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

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

College Work-Study Program

The College Work-Study (CWS) Program helps students earn money to meet educational expenses. This program currently is funded by a work-study agreement with the Iowa Department of Education. Students in the CWS Program must be enrolled at least half-time in a degree program. Their work experience should complement and reinforce their educational program.

The amount of CWS monies a student is eligible to earn is determined by the PFS, FAF, or SINGLEFLE and legislative funding. CWS employment is limited to 20 hours per week throughout the academic year. The minimum wage paid by the University is $6.50 per hour. Students are paid by check once every two weeks.

Other Sources of Aid

A guideline counselor or high school principal may have information on Iowa scholarships, and school or public libraries are excellent sources for publications about financial aid. Many places of employment, professional associations, and
labor reform have programs to help pay the cost of education for children of employees or members. Other sources include foundations, religious organizations, fraternal or secret fraternal, town or city clubs, friendly organizations, and civic groups. A little searching on the student's part may uncover some unexpected source of financial aid.

Information about financial aid for students with disabilities is available from the University's Office of Services for Students with Disabilities.

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

Information about Education Aid to War Orphans is available from the Iowa Bonus Board (Blaze House, Des Moines, IA 50314).

**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, stipends, 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 student aid available from non-university sources, such as foundations and professional associations.
Academic Advising

Academic Advising

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

In addition to providing academic advising, advisors serve in general consultation to their advisees and refer them with specific needs to appropriate support services.

Undergraduate Academic Advising Center

The Undergraduate Academic Advising Center across the University's freshmen and sophomores. Professional advisors provide interest advising, support for maintaining systematic and frequent contact with their advisees. Advisors help students explore various fields of interest, select a specific academic program, and assist with career strategies that meet their goals, and direct them properly to appropriate educational programs. They may also refer students to other campus offices for assistance in academic, personal, and career counseling, academic advising, internship opportunities, and financial aid. The advising center's offices are located conveniently near the College Senate student residence hall.

College Academic Office

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 and concerns, academic majors, course requirements, graduation options, career and degree plans, and other requirements of students who want to change advisors and/or majors, and they act on student complaints.

International Education and Services (OIES)

The OIES is the focal point of the University's international activities. It has administrative responsibility for the University's foreign-study programs and for the study abroad program. It also has developmental responsibilities in international study, institutional links, and technical cooperation with other countries. The OIES works to enrich the campus environment by promoting and pursuing interactions at all levels of international education.

The OIES promotes development of international understanding and appreciation for different cultures through international studies and promotes technical cooperation. It also assists faculty and students with research on international problems and organizes international programs for the various departments.

Through meetings and cooperation with exchange programs, the OIES encourages the development of formal linkages between University of Iowa departments and groups and their counterparts in foreign institutions. The liaison officer for the Midwest Universities Consortium for International Activities (MICUA) is located in the OIES, encouraging movement of University of Iowa faculty in MICUA activities.

Foreign students provide information, counseling, and services related to international, financial, aid, immigration regulations, and issues with foreign governments and sponsoring agencies. They support or support educational programs, such as the Friends of International Students, the Consortium of English Partners, and foreign-studies activities that aid both the University and students.

The OIES provides services and facilities and focuses upon programmatic needs for both domestic and foreign students and faculty. The study abroad staff maintains a library with resources on study abroad, travel, and current and future opportunities. The office helps students identify study abroad programs to complement their academic programs and helps ensure that they receive the correct services for such activities.

It also helps students obtain information about and applies for the following scholarships: Fulbright, Marshall, TACOS (German Academic Exchange Scholarships), International Foundation, International Students Identity Card, Tilburgen Exchange, Winnetkonsenhof Scholarship, and the Study Abroad, the Stayed Undergraduate Scholarship for International Research and Study, and the Stanley Fellowships for Graduate Study Abroad.

Study Abroad Programs

The University of Iowa sponsors a number of study abroad programs for study at international institutions. These programs include academic exchanges, in which students travel to a foreign university, as well as semester and semester programs, in which groups of students are accompanied by the foreign studies study at foreign universities in the Midwest. Students are assisted in the development of international programs and study abroad programs on behalf of the University of Iowa and the Midwest.

The OIES offers programs abroad in a variety of countries. University of Iowa students and faculty may participate in approved study abroad programs organized by other colleges, universities, and agencies, or they may study abroad on their own or in cooperation with other institutions. Students should obtain approval of all travel credit from the University of Iowa programs before leaving the United States for completing a Study Abroad Credit Approval. Information on study abroad credit is available from the Office of International Education and Services.

For the study abroad courses listed below, the following programs are offered through affiliated language departments: In 2119 Baccarat Programs in France (39.5 credits), Australian studies at the University of New South Wales, and French (15 credits), French (15 credits), and Italian (15 credits). Students may earn transfer credits for 200/205, 106, 113, 114, and 115.

106-106 Current Exchange Program

50-507 Baccarat Programs in France (39.5 credits), Australian studies at the University of New South Wales, and French (15 credits), French (15 credits), and Italian (15 credits). Students may earn transfer credits for 200/205, 106, 113, 114, and 115.

106-108 Italian Exchange Program

106-110 Russian Exchange Program

106-113 Spanish Exchange Program

106-115 Social Studies Exchange Program

106-116 French Exchange Program

106-120 German Exchange Program

106-121 German Exchange Program

106-122 German Exchange Program

106-123 German Exchange Program

106-124 German Exchange Program

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106-159 German Exchange Program

106-160 German Exchange Program

106-161 German Exchange Program

106-162 German Exchange Program

106-163 German Exchange Program

106-164 German Exchange Program
In addition to placement services for liberal arts, business, and engineering students, the office also conducts placement interviews for students who want to enter into the other college placement centers on campus.

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

Offices are located in Phillips Hall and the Iowa Memorial Union.

Career Information Center

The center will accept résumés from hundreds of employers, including local and national companies and government agencies. Academic staff also provide assistance with job search strategies, résumé and cover letter writing, interviewing, and negotiation strategies.

The center is located in the Iowa Memorial Union.

Cooperative Education

The Co-op Program is a cooperative education program that combines academic study with practical work experience. Students who participate in the program earn college credit for their work experiences and gain valuable work experience that can enhance their academic program.

The Co-op Program is open to all students, and students can choose to participate for one semester or for two semesters. The program is designed to help students develop the skills and knowledge they need to succeed in their chosen careers.

The program is administered by the Career Development Center, and students interested in participating should contact the program director for more information.
Registrar
The Office of the Registrar determines the residence status of each student, issues transcript identification cards, supervises registration procedures, provides course information, and coordinates placement and academic special events programs. It assists and informs new and returning students and visitors on University academic policies. It provides assistance to students on Selective Service and military deferments, and is responsible for all University academic records and issues official transcripts and verification.

Transcripts
Students who have completed work at The University of Iowa can obtain an official transcript of their academic record and degree at the Office of the Registrar. Fees are $3 for the first copy and $2 for each additional copy on the same order. An official transcript cannot be issued for students who have a fiscal due University account.

Services for Persons with Disabilities
The University of Iowa is committed to making its facilities and programs accessible to people with disabilities. The Office of Services for Persons with Disabilities (SPD), located in Burge Residence Hall, provides assistance to students with a wide range of visible and non-visible disabilities, including hearing and speech impairments, learning disabilities, mental illness, visual impairments, and others. The office's goal is to help students with disabilities enjoy the same rights and assume the same responsibilities as other students. The office also provides information to students, faculty, and staff on disability services for students with disabilities.

SPD works closely with University Health and staff to provide assistance with admissions, orientation, academic and career planning, academic support services, financial aid, housing, transportation and parking, and athletic and recreational services (see "Recreational Services" in this section of the Catalog). The office works with students individually to combat the type of discrimination appropriate to their needs, interests, or personal situations. It also records to eliminate any unlawful discrimination.

Special Support Services
The Office of Special Support Services, located in Curtis Hall, encourages minority diverse group of students to develop their individual potential as they may reach their educational degree objectives at The University of Iowa. The office is a resource for students who have culturally and socially different backgrounds and provides eligible students with academic, social, and financial support.

The office also assists in the recruitment of prospective undergraduate, graduate, and professional students. The Office of Special Support Services includes New Orientation in Learning and the Upward Bound Project. All non-Iowa students who participate in these programs may receive assistance.

GENERAL SERVICES

Campus Information Center
Located in the east terrace lobby of the Iowa Memorial Union, the Campus Information Center provides information about campus and community resources and University services and programs. The center is equipped with computer systems and is accessible 24 hours a day. The center also provides information about the location and availability of dining and sporting facilities, shopping, health care, and travel services. The information available includes maps, bus stops, hotels, motels, and apartment complexes. The center is open seven days a week.

Campus Programs and Student Activities
The Office of Campus Programs and Student Activities (OCPSA), located in the Iowa Memorial Union, provides diverse and balanced cultural, social, intercultural, and educational programs and activities in the Iowa Memorial Union, the University of Iowa campus, and the community. It helps students organize and develop cultural and social events that enhance students' academic and personal development.

Central Office employees provide information to students on a wide range of organizations in the University of Iowa campus. They also contribute to the effective management and planning of campus programs. The Student Volunteer Clearinghouse, a program designed to incorporate local volunteers agreements, and University students in volunteer service, is coordinated by the OCPSA.

Campus programs and special events planning are ongoing tasks for OCPSA. Student groups, working in conjunction with OCPSA staff, plan and conduct traditional events such as Homecoming, Homecoming, and National Events and traditions, and new campus programs. In addition to the Arts, Crafts, and Recreation Area, the Student Union, the Iowa Memorial Union, the University Book Store, the University of Iowa Campus Program, the Altered American Cultural Center, and the Iowa-Native American Cultural League. The campus programs promote the student information network (SOFTS) and the student information network (SOFTS) of the University of Iowa.

Cultural Centers

The University sponsors the Altered American Cultural Center and the Iowa-Native American Cultural Center under the auspices of the Office of Campus Programs and Student Activities. The centers meet at the evenings to share experiences, learn mutual academic and personal support, and develop social programs, all of which attract people of different cultural heritages. Programs and activities at the center are open to all students.

The Altered American Cultural Center sponsors discussions, activities, and social events throughout the campus year. The center also hosts a library with special-interest books and pamphlets and is well-maintained by student and guest attendants.

International Center

The International Center offers programs and services to students at The University of Iowa who are non-Iowa international students. The center also offers programs designed to encourage interaction among people from all cultures.

The International Center is located in University and Iowa City. It is sponsored by an International Center association.

Sports and Recreation

Intercollegiate Athletics for Men

The University of Iowa is a member of the Big Ten Conference and has athletic programs for men in football, basketball, baseball, swimming, bowling, indoor track, soccer, and rugby. The University of Iowa is a member of the Big Ten Conference and has athletic programs for women in basketball, cross-country, field hockey, golf, gymnastics, softball, swimming and diving, tennis, track, and field, and

Intercollegiate Athletics for Women

The University of Iowa sponsors nationally competitive intercollegiate athletic teams for women in basketball, cross-country, field hockey, golf, gymnastics, softball, swimming and diving, and tennis, and track and field, and
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.

Physical Education

More than 30 different intramural and recreational activities are offered. Activities vary from popular team sports such as softball and flag football to individual and小组 activities such as squash and archery.

Sports Clubs

Recreational services advise and fund more than 20 sport clubs organized by individuals for their enjoyment in a sport or recreational activity. Clubs range from competitive teams such as soccer and tennis to recreational clubs such as table tennis and bowling.

Lesson Programs

The Division offers a variety of noncredit instructional classes for all age groups throughout the year. To learn the cost of a particular class, call the Recreation Information Center at (319) 335-1200.

In-House Exercise Programs

The Division offers a variety of fitness programs, including aerobics, weight training, tennis, swimming, and aerobics classes. Students are encouraged to participate in these programs to maintain a healthy and active lifestyle.

Outdoor Recreation

The Division operates the Chadwick Nature Recreation Area, one of the finest university-managed outdoor programs in the country. The 255-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 archery range, a lake-turkey center, and some of the best cross-country skiing in the Midwest. It is also 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, kayaking, horseback riding, rock climbing, horseback riding, cross-country and downhill skiing, and snowboarding. An outdoor check-out service located at 209 West Clinton Street, offers all types of outdoor equipment, including cross-country skis, picnic equipment, canoes, backpacks, skis, and tents.

Persons with Disabilities

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

Summer Sports Camps

The University of Iowa has one of the largest summer sports programs in the Midwest. All popular team sports are offered—baseball, basketball, swimming, track, tennis, volleyball, wrestling, soccer, and field, golf, and track. Women's programs include aerobics, basketball, and tennis. There are also unique camps in activities such as cheerleading and special services. The University of Iowa Varsity Camps Office is located in the Iowa Memorial Union.

Iowa Memorial Union

The Iowa Memorial Union (IMU) is the hub of student life. In facilities include a couple center; the Campus BookStore Center, the University Bookstore and check cashing service; the Office of Campus Programs and Activities; the Information Center; the University Bookstore, which offers free entertainment; a recreation area with television and electronic games; a library; the main floor of the residence 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 restaurants, Union Station, Union Plaza and Union Pavilion restaurants, and the Union Pavilion dining room, and catering service. The adjoining Iowa House has 110 guest rooms for alumni, association members, visitors, and others who are attending the various events at the university.

Women's Resource and Action Center

The Women's Resource and Action Center (WRAC) provides services to meet educational, cultural, social, and personal needs of the University and community women. WRAC advocates for the women in the University community and offers educational programs and counseling services to women who desire help and advice. It also provides a variety of programs that are designed to meet the needs of women who seek information and support. WRAC offers a variety of services, including counseling, educational programs, and resource materials.
Applications and Assignments

Perspective undergraduate students should request housing application forms to apply for residence hall accommodations. Students applying for residence hall accommodations should read the terms and conditions of the contract, provide all information requested on the application form, sign the contract portion, and return the completed application/contract, with a check for $50 made payable to The University of Iowa, to the housing office in Bierce Hall.

Students wishing to be roommates must ask for the same accommodations. Students must list another student’s name and social security numbers and be sure they have listed roommate in their number-one priority of preference. Roommate requests are processed according to the date the housing application is received. The assignment office does not consider requests for roommates who have not been admitted at the time assignments are made, for those who have not completed the housing application correctly. Applicants do not receive roommate assignments until they have been admitted to the University. However, they can 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 Assignment Office in writing before their application becomes a binding contract. The application becomes binding approximately ten days after the University Housing Assignment Office issues notice of acceptance of the contract and assignment of accommodations. Assignments are usually mailed to new students during the month of April.

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 in accordance with the terms and conditions set forth in the contract.

Rates

Basic rates for University residence hall accommodations for the 1992-93 academic year are $3,148 for a double room or $5,004 for a triple, with hall board (20 meals per week). Rates for moon- and board-only rooms vary according to accommodations. Rates are subject to change annually.

Family Housing

The University of Iowa provides 749 unattached family units to accommodate students living with their families. Hawkeye Drive and Hawkeye Court are located on the west side of Iowa City, and Pheasant Lake is located close to the campus center. Each complex is unique, but all three offer off-campus parking, rug, refrigerator, range and paid water, city bus and Campus service, play areas for children, telephone and local service, and basic television reception with pay cable option. There is schoolbus transportation for children in Hawkeye Drive and Hawkeye Court.

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

Monthly rents for the 1992-93 academic year are $187 for efficiencies, $230 to $245 per month for one-bedroom units, and $279 to $353 for two-bedroom units. Rates are subject to change annually.

Family housing is assigned according to the order in which applications are received. Applicants must meet all University admission requirements before assignments can be made. Applications may be filed before admission is complete, but care is not accepted more than one year in advance.

Off-Campus Housing

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

Fraternities and Sororities

Twenty-nine undergraduate social fraternities and 20 undergraduate social sororities exist on the Iowa campus. Twenty-one fraternities and sixteen sororities operate chapter houses, which accommodate 33 to 40 people each.

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

Undergraduate sororities include Alpha Chi Omega, Alpha Delta Phi, Alpha Gamma Delta, Alpha Kappa Delta, Alpha Phi Alpha, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Chi, Delta Zeta, Delta Sigma Theta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Kappa Phi, Kappa Sigma, Sigma Alpha Epsilon, Sigma Chi, Sigma Gamma Gamma, Zeta Beta Theta, and Zeta Tau Alpha.
University Policy on Human Rights

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

Student Complaints Concerning Faculty Actions

Student complaints concerning actions of faculty members 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 faculty member involved.

• If the student finds this procedure inadequate, the complaint may be submitted in writing to the appropriate dean or other university official.

• If there is a satisfactory response, the complaint may be submitted in writing to the dean or other university official.

• If the student is dissatisfied with the dean's response, the complaint may be submitted in writing to the Ombudsperson.

• If the student is dissatisfied with the Ombudsperson's response, the complaint may be submitted in writing to the provost or other university official.

• If the student is dissatisfied with the provost's response, the complaint may be submitted in writing to the president of the university.

• If the student is dissatisfied with the president's response, the complaint may be submitted in writing to the board of trustees of the university.

They may consider the ombudsperson at the outset, however, if using offices already involved is not a feasible or practical option. The University has no power to order changes in rules, regulations, policies, procedures, or the behavior of others. Solutions reached through the Office of the Ombudsperson are not binding; it is the responsibility of the parties involved to see that the solutions are implemented.

Policy on Sexual Harassment

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

Division I. Sexual Harassment

Section 1. Rationale

(a) Sexual harassment is representational and will not be tolerated by the University. It affects the mission of the University and threatens the career, 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 subjected to sexual harassment, 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 explicitly the power inherent in a faculty member's or supervisor's position. Through grade, wage, promotion, 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 uncomfortable 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 any 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 is or rejection of such conduct is used in 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. Commonsense Relationships in the Instructional Context

No faculty member shall have an anonymous relationship (consummated 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.

Halloween trick-or-treating in the residence halls
RESEARCH AND INTERDISCIPLINARY ACTIVITIES

The University recognizes that its creative activity is indispensable to its reaching 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 as overview of the many individual research commitments of the institution and actively promotes the research mission of the University in many ways. It

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

The Office of the Vice President for Research manages a close relationship with the Graduate College because of the college's role in providing the connection between graduate programs and research and creative activity. The University Research Council assists the vice president for research in a regular advisory capacity, but the council consists of ten faculty members who are widely recognized for their personal involvement in basic research or creative activity, one representative of the University staff, and two student members. Faculty members include two each from the physical, biological, and social sciences and the humanities, and two from the faculty at large. The council gives regular consideration to matters such as the establishment of general policies regarding the University's research and creative efforts, the review of policies and procedures concerned with securing and allocating funds for support of research and creative activity, and additional matters related to the general research and creative functions of the University and the health of basic scholarship on the campus.

Programs

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

Carver Scientific Research Initiative Grants Program

The Carver Scientific Research Initiative Grants Program, funded by the J.R. Carver Charitable Trust of Muscatine, Iowa, is designed to focus support on nontraditional projects in the hard sciences and technology-related fields. The program provides competitive research grants as "venture capital" to encourage faculty who have existing ideas with long-range potential, but who need to conduct preliminary studies in order to obtain external support. Awards normally are limited to projects in the natural, physical, biological, and technological sciences in the Colleges of Liberal Arts and Engineering.

Junior Faculty Research Support

A limited amount of money is available each year from the National Institutes of Health for the support of the initial research efforts of junior faculty (other than those in the Colleges of Dentistry, Medicine, and Pharmacy) who want to do health-related research. To qualify, the faculty member must hold a full-time appointment as an associate or assistant professor. The funds must be used for any purpose that will assist the junior faculty member in conducting an initial exploration of a hypothesis that he or she believes may lead to the development of a full-scale program of research.

Incidental Grants

Limited funds also are available in the Office of the Vice President for Research for small grants to faculty members to cover the costs of materials, supplies, equipment, proposal writing, and clinical and social services in support of specific research projects; for 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 honors and expenses of visiting instructors.

Services

The Office of the Vice President for Research also provides a number of 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, several university-wide facilities supported by University support. 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. Some financial support is available from the Office of the Vice President for Research for use of the facilities graduate students. 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 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 reports from a research protocol, and animal care. Biologists, cytologists, questions concerning humane treatment, budgetary considerations, and the University's policy on animal care. Training for investigators concerning proper husbandry and biotechnology is available upon request.

All requests for animals must be initiated through the Animal Care Unit. All protocols involving animals, regardless of funding source, must be submitted to the University Animal Care and Use Committee prior to study's begin.

Computer-Assisted 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 image analysis. Several commercial, public, and faculty-developed software packages are available, including applications in image processing, graphics modeling, virtual prototyping, 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, Videocassette, microscopic photographs, gels, and photographs. Images that have been digitized elsewhere (including images from medical microscopes) and stored on magnetic media can be transferred into the computer via a magnetic tape drive, a floppy disk drive, an internet, or a computer network.

Research and Interdisciplinary Activities • Special Resources at Iowa
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 FRODO, OOM, SYMM, ATICO, Gaussian 85, Kohni, MacMolecules, and Chemlan. University courses and workshops are offered in molecular modeling.

Software development and consultation are available from the three full-time engineers. Training in techniques and production work also is available.

Electron Microscopy Facility

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

Equipment includes the following: a Hitachi S-2700 scanning electron microscope equipped with a cryostage, backscattered electron detector, and a KEVEX EDX system; a Hitachi S-4500 field emission scanning electron microscope equipped with a backscattered electron detector; Hitachi H-400 and H-7000 transmission electron microscopes equipped with TEM and a KEVEX EDX system, a cryostage, electron diffraction, a hexhemihydrate platform, and a quadruple rodulator; a Hitachi H-600A laser scanning confocal microscope equipped with a krypton/argon laser, dual-detector system, optical slit scanning, frame-free camera, color printer, and a heating/cooling stage; a Zeiss 310-bias-filament apparatus; an automatic tissue processor; a Hitachi SEM deflector; a Hitachi critical point dryer; an emissions gun printer; a Kores automatic computerized optical stage; a Hitachi electron microscope and other systems; four Reichert ultratome VI ultramicrotomes; including UC-45 cryotechning apparatus; A.O. sexagesimae; as well as Cytostat Vibratome; a Leitz cryosection; LKB glass knife maker; diamond knives; and a Leitz (Upright) stage microscope equipped with brightfield, darkfield, phase, Nomarski 3D, ep-polarization, and ep-fluorescence microscopy, as well as 30mm., Polomat, and wide cameras; a Zeiss ion mill; a Hitachi plasma anode; an Erichsen carbon coater; a Hitachi vacuum evaporator; a Wescan oscilloscope; centrifuge; balances; oven; and three photographic disciples equipped with automatic film and print processors.

The facility also provides all instruments, supplies, and training for investigators involving microscopy, including specialized staining and embedding techniques. Specialized metal-coating, autometallurgy, cryofixation and cryotempering, cryosectioning, cryoemulderation, immersion fixation, mercurialization, and snalemet, the preparation of essential materials for both TEM and SEM, including epoxy microcrystals, and other procedures. A library containing texts and reviews on various applications of light, transmission, and scanning electron microscopy also is available.

Bacteriology

The facility is intended to serve both experienced and novice investigators and to provide training for those who need it. Additionally, 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 Solomon Medical Research Building.

High Field Nuclear Magnetic Resonance (NMR) Facility

Three superconducting spectrometers form the basis for the High Field NMR Facility. The Bruker WM-250 spectrometer operates at 250 MHz, and the Bruker MSL-300 operates at 300 MHz for proton observation. The Bruker AMX-500, operating at 500 MHz, represents the most advanced commercially available NMR spectrometer. Very high spectral resolution and sensitivity can be achieved for structurally determined compounds. More than 3000 resonance assignments have been made on the spectrometers.

For the casual user, the facility is operated on a first-come, first-served basis; however, a reservation can be made for the frequent user for an open access period. The facility is located in the western basement area of the Chemistry/Chemistry Building.

High Resolution Mass Spectrometry Facility

The High Resolution Mass Spectrometry Facility, located in the Chemistry/Chemistry Building, provides the users with a high-resolution spectrometer that has been in use in modern mass spectrometry. Through the utilization of this facility, information on the molecular weight, elemental composition, and molecular structure of organic, inorganic, and pharmaceutical molecules can be obtained (to ±0.001 amu). The most important of the many applications for gas chromatography/mass spectrometry, fast atom bombardment mass spectrometry, and mass spectrometry for biological research. Gas chromatography/mass spectrometry (GC/MS) permits the analysis of all components of any complex mixture that can be separated by the gas chromatography technique. Gas chromatography/mass spectrometry is especially useful in research projects that require the analysis of complex samples, such as environmental studies.

Fast atom bombardment mass spectrometry (FABMS) permits the analysis of large, polar, or involatile compounds that cannot usually be studied by other mass spectrometric methods. FABMS is particularly useful for biologically important compounds such as proteins, nucleic acids, oligosaccharides, antibiotics, and toxins.

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

The facility houses three mass spectrometry instruments. The primary instrument is a VG ZAB-HF high resolution mass spectrometer, which is interfaced to a Harwell/Varian HP-3940A computer and a DEC PDP 11/73 data system. The instruments are equipped with positive and negative ion capabilities in the electron impact (EI), chemical ionization (CI), GC-MS, and FAB ionization modes. High resolution mass spectrometry can be made in all of these modes of operation.

The second, a VG TRIO-3 triple quadrupole mass spectrometer interfaced to a Hewlett Packard 6890 gas chromatograph, a VG 5989A GC and a DEC PDP 11/33 data system, permits CI and MSMS and FAB experiments. MS/MS techniques used for structure elucidation experiments can be applied in all modes. The third instrument, a VG TRIO-1 single quadrupole mass spectrometer, is interfaced to an HP 5989A GC and an INTELLID 376 computer. The TRIO-1 is available for routine, low resolution EI, CI, and CI-MS experiments. The user-friendly nature of the TRIO-1 data system permits hands-on sample analysis in a variety of research laboratories.

Large Scale Fermentation Facility

The Large Scale Fermentation Facility, located in the Bowen Science Building, makes possible the large-scale growth and recovery of such microorganisms as yeast and bacteria. With its sophisticated growth, monitoring, and isolation equipment, the facility is one of only four medium- to large-scale research facilities in the world dedicated to the growth of pathogenic bacteria and is one of only five or six such facilities also growing extremely harmful bacteria in 70-100 degrees C. The facility director is available for consultation on medium composition, fermentor conditions, fermentation growth, and other services provided in areas such as inoculum preparation, medium preparation, identification, process inoculation, inoculum growth monitoring (if required), and harvesting. Users can arrange for large-scale plate and tube studies as well as fermentation and other relevant technical and scientific services.

Social Science Information

The University of Iowa Social Science Institute (SSI) is a research and teaching facility that supports the work of faculty and graduate students in a variety of departments on campus.
Center for Health Effects of Environmental Contaminants

The Center for Health Effects of Environmental Contaminants (CHEEC) is a major program of the University of Iowa. The center is dedicated to understanding the health effects of environmental contaminants, including the factors that contribute to these effects. The center conducts research, education, and outreach to promote a better understanding of the health effects of environmental contaminants.

Iowa Consortium for Substance Abuse Research and Evaluation

The Iowa Consortium for Substance Abuse Research and Evaluation is an organization that promotes research and education on substance abuse. The consortium consists of researchers from universities across Iowa, and it aims to improve the understanding of substance abuse and develop effective interventions.

Public Policy Center

The Public Policy Center conducts research on public policy issues, including health care, transportation, and social welfare. The center seeks to develop evidence-based policy solutions that can improve the quality of life for all Iowans.

Office of the State Archaeologist

The Office of the State Archaeologist (OSA) conducts archaeological research and preservation of sites and artifacts. The office works to protect and preserve the cultural heritage of Iowa. The OSA provides services to researchers, educators, and the general public.
The OSA conducts research, educational, and service activities throughout the state and provides consulting services for agencies, municipalities, and firms that need archaeological expertise. Its network emphasizes archaeological site survey and evaluation of development areas, as well as new highway contracts, to ensure data are collected before construction. It also conducts field schools, research workshops, and cooperative research projects with other departments and agencies. Through OSA, the University of Iowa students engage in a variety of laboratory and field experiences.

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

OSA resources include more than 2,000 annotated archaeological collections that are available for study and research. OSA offers workshops, lectures, and collection access by appointment to students and staff at the University of Iowa.

We map state archaeology. Iowa’s Quaternary Studies Group offers students opportunities to work with us in the laboratory or field on projects that are relevant to our knowledge of Iowa’s past. Our research projects vary from those that focus on specific archaeological sites to those that investigate broader topics such as prehistoric subsistence strategies or cultural dumping practices. Our studies help us to better understand the human occupation of Iowa throughout prehistory.

Procedures for field research are provided in a manual that is available for download on the OSA website. This manual includes guidelines for conducting archaeological investigations, as well as procedures for artifact analysis and report writing. Fieldwork is designed to involve students in all aspects of the research process, from site selection and data collection to data management and analysis.

We offer field schools and workshops that provide hands-on experience with archaeological techniques and methodologies. These opportunities allow students to gain practical skills and develop their research interests. Field schools and workshops are led by experienced archaeologists and are designed to be accessible to students from a variety of backgrounds.

Financial Support

All graduate students are offered financial support. Teaching assistantships, research assistantships, teaching fellowships, and graduate assistantships are available. The Graduate School awards graduate assistantships to students based on academic excellence and potential contributions to the scholarly community. These assistantships provide funding for tuition and fees, as well as a stipend for living expenses.

The University of Iowa is committed to supporting its graduate students and ensuring their success. We provide a range of resources to help students achieve their goals, including access to academic and professional development opportunities, as well as financial support through assistantships and scholarships.

Iowa Quaternary Studies Group

Program and Facilities

The Department of Biological Sciences offers graduate degrees in archeology and paleoecology. Students interested in pursuing a degree in these areas are encouraged to contact the director of the Iowa Quaternary Studies Group for more information about research opportunities and program requirements.

Contact Information

University of Iowa
240 North Linn Street
Iowa City, IA 52242

Phone: (319) 335-2480
Email: quaternary@uiowa.edu
Website: https://quaternary.archaeology.uiowa.edu

Visit us online to learn more about our research projects and how you can get involved!
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. Some units are described briefly in the appropriate college sections of this Catalog.

Institutes

- Iowa Institute for Dental Research: College of Dentistry
- Economic Research Institute: College of Business Administration
- Financial Markets Institute: College of Business Administration
- Industrial Relations Institute: College of Business Administration
- Institute for Health, Behavior, and Environmental Policy: College of Medicine
- Institute for Insurance Education and Research: College of Business Administration
- Institute of Agricultural and Occupational Health: College of Medicine
- Institute of Hydraulic Research: College of Engineering
- Iowa Institute of Biomedical Engineering: College of Engineering
- Dr. B. McClendon 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: College of Liberal Arts
- Center for Blood Analysis and Biocomputing: College of Pharmacy
- Center for Global and Regional Environmental Research: College of Engineering
- Center for Health Effects of Environmental Contamination: College of Engineering
- Center for Health Services Research: College of Medicine
- Center for International and Comparative Studies: Graduate College
- Center for Laser Science and Engineering: Graduate College

Financial Support

Teaching and research assistants are available on a competitive basis from each of the departments involved. Some funds are 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 Department(s) of Biological Sciences, Geography, Geology, or Statistics and Actuarial Science, or to the Director of the Department of Computer Science.
Center for International and Comparative Studies

The Center for International and Comparative Studies (CICS) coordinates, promotes, and supports interdisciplinary international studies at The University of Iowa. A Title VI National Resource Center on Environmental Studies, one of only 13 such centers in the United States, CICS serves the faculty, the region, and the nation by making available the University's human and bibliographic resources through conferences and lectures, publications, training programs, instruction, and research. Within the University, the center extends financial support to existing international programs and encourages institutional coordination and the enhancement of international studies. It supports faculty, student and research, undergraduate and graduate instructional programs, and public programs and outreach activities. The center is affiliated with the Hispanic Studies, Comparative Education, Economics, Geography, History, Languages, Linguistics, Political Science, and the School of International Studies.

Interdisciplinary Programs

Eight interdisciplinary programs are represented in CICS: Four promotion and research with a geopolitical focus: the African Studies Program (ASP), the Asian Studies Program (ASP), the Latin American Studies Program (LAS), and the Middle Eastern Studies Program (MES). These programs, along with the Global Studies Program, are involved in undergraduate international programs in the College of Liberal Arts. (For more information, see the appropriate department sections of the College of Liberal Arts section of the Catalog.)

The remaining four programs pursue research and teaching activities using special areas: the Global Studies Program, the Project for International Communication Studies (PICS), the Program for International Development (PID), and Women's International Development (WID).

The center also houses or works closely with eight affiliated programs: the Americas, Africa, and the Caribbean, the Latin American, and Traditional Technologies in Developing Countries, the Development Support and Communication Program, the Foreign Language Assessment Program, the undergraduate International Studies Program, the Center for Asia and Pacific Studies, the International Environmental Studies Program, and the International and Comparative Law Program.

International Research

The center sponsors research and curriculum development grants to faculty and staff, and international research fellowships for graduate students. It also supports research projects in Africa, Asia, Europe, Latin America, and other parts of the world.

In cooperation with the University of Iowa Library, the Center also sponsors the International Bibliographic Index, a service of the Library of Congress and other research libraries.

Instructional Programs

The center supports instruction through courses, seminars, summer schools, and curriculum development grants. In cooperation with academic units, it also offers a certificate in African studies, global studies, and Latin American studies. Undergraduate minors in global studies and Latin American studies; a bachelor's degree in African studies, global, and Latin American studies; and a master's degree in development studies are available. The center also publishes a newsletter, The Institute for Cinema and Culture

The Institute for Cinema and Culture explores the University's strong position in the film studies field by presenting existing resources on campus and to initiate new ventures. It serves as an information hub for the campus and the public. CICS also works with the Iowa City Art Center to present films and speakers from around the world. The Center also sponsors the annual Film Festival and the International Film Series.

Iowa Lakeside Laboratory

The Iowa Lakeside Laboratory, a field station for the biological and physical sciences in Lake Okoboji in northwest Iowa, is the site of a cooperative program in teaching and research. It is located on the campus of the University of Northern Iowa, the University of Iowa, and The University of Iowa. Two terms of five weeks each are held during June, July, and August. Fieldwork for graduate research is available. The Iowa Lakeside Laboratory is the recipient of the Robert M. Andrews Award for Excellence in Teaching.
Traditionally, the strength of a library system has been in providing a broad, comprehensive collection that is available to its users. This has particularly been the case for the University of Iowa Libraries, where the collection is available to the students and faculty of the university. The libraries serve a wide range of disciplines, from the sciences to the humanities, and are well equipped to meet the needs of both undergraduate and graduate students.

The University of Iowa Libraries is a significant component of the University of Iowa. It is divided into several parts, each with its own unique collection and services. The libraries provide access to a vast array of materials, both physical and digital, to support teaching, research, and learning. They offer a range of services, including interlibrary loan, electronic resources, and instruction in research strategies. The libraries also host a variety of events and programs, such as author talks, film screenings, and workshops.

In addition to its role as a research library, the University of Iowa Libraries also serves as a cultural center. It hosts a number of art exhibitions, performances, and lectures, providing a platform for the exchange of ideas and the promotion of knowledge. The libraries are also a hub for community involvement, offering resources and services to local organizations and institutions.

The University of Iowa Libraries is committed to providing a welcoming and inclusive environment for all users. It offers a variety of accommodations and services to cater to diverse needs, including detailed accessibility information and guidance.

In conclusion, the University of Iowa Libraries is a vital resource for the University of Iowa community. It plays a crucial role in advancing research, supporting education, and fostering intellectual growth. Through its extensive collection and diverse services, the libraries continue to be a cornerstone of the university's mission.
University Hospital School

As Iowa's University Affiliated Program for children and 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. In services are a complement of the psychiatry, physical and occupational therapy, speech pathology, psychology, social work, school psychology, and audiometry, work with clients.

Outpatient services provide comprehensive evaluation of the disabilities of infants, children, and young adults. Programs to enhance function and quality of life are recommended in consultation with the patient, or when appropriate, their family member, and community service providers. Compatibility with local service is given high priority.

Special clinics include the Child Development Clinic, Measles Encephalitis Clinic, Meningococcal Meningoencephalitis Clinic, Adult and Young Adult Clinic, and Adult and Young Adult Clinic.

Short-term admissions to inpatient unit may be arranged for relatively specific goals that can be met while the patient is in the inpatient unit.

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 provide services for persons with disabilities.

The University Hospital School has a variety of educational, recreational, and community service activities for students. For community service providers, and for others. These activities include educational programs, lectures, workshops, and seminars. They may be provided at the University on a creditable, non-creditable, or voluntary basis.

Location: The Wetzel (Spoken and Hearing Center, the clinic provides evaluations and consultations for individuals with speech, language, or hearing problems: habilitation or rehabilitation programs for persons who can come to the clinic, or for such services in Iowa City or a community center.

Wendall Johnson Speech and Hearing Clinic

Located in the Wetzel (Speech and Hearing Center, the clinic provides evaluations and consultation to individuals with speech, language, or hearing problems. The clinic is intended to serve the needs of individuals with speech, language, hearing, and reading problems. The clinic is also intended to provide services to the University of Iowa community.

The Iowa Center for the Arts

Located on the west side of the Iowa River, the Iowa Center for the Arts is a national landmark and a cultural destination not only for the University community but for the entire state and the nation. The center, which opened in 1985, is a repository of the University's commitment to the fine arts. The center's mission is to bring the arts together to a single campus setting, near the geographical center of the University.

The arts center facilities include a number of artistic spaces in the College of Liberal Arts, together with performance and exhibit spaces in the Visual and Performing Arts Center. The center, which opened in 1985, is a repository of the University's commitment to the fine arts. The center's mission is to bring the arts together to a single campus setting, near the geographical center of the University.

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structures and the educational and cultural offerings of the Iowa City area. The addition to resources from the state of Iowa and the federal government, private contributions from growing numbers of corporate and individual benefactors, and the loyalty of a quality and diverse audience to the center's services 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 long ranked among the best of its type in America. Its history dates back to 1854, the year of the college's founding, with a faculty of one. In the early 1920s, the school became one of the first to offer a master's degree in art education.

Museum of Art

As one of the largest art museums in the United States, the University of Iowa Museum of Art (UIMA) recognizes its responsibility to serve as a national institution for the study of art, and to present and interpret works of art to the public.

Jewish Iowa University Theaters

Iowa's University Theares is the production arm of the Department of Theater Arts, performing at the newly constructed, 1,000-seat Performing Arts Center.

Theatre Building

The Theatre Building is one of the most recent additions to the university's campus, providing state-of-the-art facilities for the departments of drama, music, and dance.

School of Music

The School of Music offers a wide range of academic and performance opportunities, including degrees in music education, performance, composition, and musicology.

Professional Summer Repertory Company

The company performs a variety of professional productions, including revivals of classic and contemporary works, as well as new works commissioned for the festival.
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 studio musicians of the Center for New Music form a repertoire ensemble for the performance of both new compositions and transcriptions of the twentieth century. The Composer Workshops has executed the creative workshop concept that was pioneered in the literary arts in the development of young composers.

Two experimental music studios provide a wide range of technical capability for creating audio-visual works, including computer-composed 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 disc by major artists.

Hancher Auditorium

Hancher Auditorium is a regional and national cultural resource of the fringe territory. The 2,464-seat facility opened in 1972 and in its first two decades has hosted audiences of nearly 3.5 million people. The auditorium is fully accessible to persons with disabilities, including wheelchairs. Hancher also has an active schedule of events in the Runnells' Quartet, Laura Andison, and Philip Glass.

Hancher is host to a wide variety of performances, including the world premiere of the Broadway hit; Hollow Night; the 90th anniversary tour; and the world premiere of the Broadway musical, Once on this Earth. In addition to providing entertainment, Hancher is a cultural center that includes the Masonic Lodge, The Women's Center, and the Iowa Women's Center. In recent years, Hancher has been used for a wide range of performances, including the world premiere of the Broadway hit; Hollow Night; the 90th anniversary tour; and the world premiere of the Broadway musical, Once on this Earth. In addition to providing entertainment, Hancher is a cultural center that includes the Masonic Lodge, The Women's Center, and the Iowa Women's Center. In recent years, Hancher has been used for a wide range of performances, including the world premiere of the Broadway hit; Hollow Night; the 90th anniversary tour; and the world premiere of the Broadway musical, Once on this Earth. In addition to providing entertainment, Hancher is a cultural center that includes the Masonic Lodge, The Women's Center, and the Iowa Women's Center.
MUSEUM OF NATURAL HISTORY

The Museum of Natural History, located in Madison Hall, is an evolution 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 academic disciplines at the University, the Museum of Natural History provides a repository for proper care for objects and specimens that come to the University either by gift or through the efforts of its own collection. 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 education and teaching by University faculty and students as well as for public education and interpretation.

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

The Museum's Iowa Hall gallery features 40 evolutionary exhibits based on space, theme, and time, illustrating Iowa's natural heritage—its geology, native culture, and economy. Exhibit highlights of Iowa Hall include the Marquette-Joel Thorburn, Davenport moose, Muscatine bear, and a life-size reconstruction of an Ice Age giant ground sloth.

In First Hall, the Lewis Island cycloramas is a large and well-known bird exhibit comprising a complete representation of a bird family, with some birds in the behavior stage. The exhibit includes the blue jay, Louisiana swamp sparrow, and crows in the South Dakota prairie. The eagle exhibit includes both the osprey and the eagle representing what they appear on the prairie during migration. Museum staff is available to answer questions about birds, reptiles, zoology, mammalogy, and entomology. A daily 47-foot-long display of the rare Atlantic right whale.

The major interpretive signs are represented in several exhibits and include familiar groups such as birds and mammals, plants and clams, sea and cormorants. Ethnological exhibits in the museum present artifacts from many parts of the world. Indian and Eskimo materials, including beadwork and carven woodcarvings, are particularly famous. Other exhibits of the century, are exhibited. The library of human culture through 17 million years of man, is illustrated in a display featuring a fossil replica of woman from Africa, Asia, and Europe.

Current group tours of natural halls are offered daily and can be arranged by advance reservation. The Museum of Natural History also supports limited outreach programming to area schools and provides a weekend science and field trip series for the general public.

OLD CAPITOL

Iowa's Old Capitol, a National Historic Landmark, has served Iowa for nearly 150 years as a seat of government and government to the people of Iowa from 1842 to 1886, and as the first state capitol from 1846 until 1867, when a new capitol was completed. Old Capitol then became simple building of the University's permanent building. An example of Greek Revival architecture, Old Capitol was restored in the 1970's to reflect its history and to serve as a living museum providing space for ongoing University functions. Two rooms have been restored to the 1920's to reflect the University's long and continuing use. Other rooms have been authentically restored, some with what may be original pieces used by state legislators in the 1840's. One of the building's most unusual features is its reverse verandah staircase, which dominates the central hallway.

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

OTHER SERVICES

Evaluation and Examination Service

The Evaluation and Examination Service, located in the College of Liberal Arts, provides services to help students and their advisors make decisions related to course selection. In addition, the office provides registration materials and procedures. The office also conducts standardized tests and programs, including the American College Entrance 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 administers, scores, and provides written feedback to students to help plan and program course examinations; conducts institutional research; and provides written feedback to individuals on examination design and collection and processing.

Printing Department

The Printing Department is the University's official in-house printer, serving faculty, staff, and students. The full-production facility offers design, editing, composition, prepressing, proofreading, page proofs, mailing, printing, binding, color copying, and duplicating services. The department also functions as a service facility for desktop publishers, with a wide range of equipment, forms, and software, including high-resolution printers; color output capability; and a wide variety of paper and specialty materials.

Experienced customer service staff members are available to assist clients on printing and to help resolve any problems that may arise. The department's ten satellite copy centers, conveniently located throughout campus, offer 24-hour turnaround on copying, duplicating, and printing services, as well as existing and imaging.

Radio Broadcasting Services

WUSL and KIUI-FM extend the resources and activities of the University to the people of eastern Iowa with 18 hours of daily broadcasting. The broadcast schedule consists of educational, cultural, and informational programming and is generally available everywhere in Iowa, as well as University of Iowa Radio (NPR), WUSL contributes programs material to a national network of more than 300 commercial radio stations. The main studios and offices are located in the Engineering Building and a free copy of the WUSL(KIUI) 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 employees to continue their involvement with the University. In addition to offering traditional programs such as class reunions, the association supports the University by raising funds for the University's most important work. The University of Iowa Alumni Association is a network of alumni clubs that take the University to the State and Nation, recognize distinguished alumni, and sponsors a nationally recognized journal, the Alumni Association Review, to keep its 63,000 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 work to recruit prospective students, it also provides the University's Career Information Network for students exploring careers, and it sponsors the Student Alumni Ambassadors, who plan and conduct the annual Fall Parents Weekend.

Ou drawbacks of the Alumni Association are supported primarily by membership dues, special gifts, and special events.

University of Iowa Foundation

The University of Iowa Foundation was organized in 1959 to help the University obtain the necessary program and private grants. The foundation is the preferred channel for private gifts to The University of Iowa through annual giving programs, memorial and planned gifts, planned gifts such as bequests and trusts, and capital and other special-purpose campaigns.

The foundation is a nonprofit corporation empowered to solicit and receive gifts and
Office of University Relations

The Office of University Relations (OUR) exists 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 works to maintain an effective communication program including the use of internal and external media. It coordinates the University administration on University relations matters and 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 News Service (UNS) and University Relations Publications (URP). UNS includes staff who specialize in coverage of the performing arts, the health sciences, and women's interdisciplinary studies, as well as general news, broadcast news, and photography units. These units supply news, photos, and information to print and electronic media. URP serves as a clearinghouse for information and serves news media in a variety of ways, and assist writers, photographers, and broadcasters who visit the campus.

University Relations Publications publishes Special for alumni and friends of the University, Parent Times for student parents, FYI, the University's newsletter for faculty and staff, and Iowa, focusing forthcoming arts activities; specialized materials for prospective students; in association with the Office of Admission; and other special and general-interest publications for external audiences.

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

University Ombudsperson

The Office of the University Ombudsperson responds to problems and disputes brought forward by all members of the University community—students, staff, and faculty—that appear insolvable through existing channels. The ombudsperson investigates claims of unfair treatment or erroneous procedure and serves as a neutral and detached listener, information resource, advisor, intermediary, and mediator. See "University Ombudsperson" in the Student Life at Iowa section of the Catalog.
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**Editors and Contributors**

- Judith P. Altman
- Anne R. Lindberg
- Annamarie Whiteley

**Acknowledgments**

- Thanks to the staff of the College of Liberal Arts for their help and support.
- Thanks to the students for their contributions.
- Thanks to the alumni for their donations.
The educational programs offered in the College of Liberal Arts provide the necessary foundation for the specialized education or training that many occupations and professions require. They form the basis for graduate work and provide preprofessional training for professional careers in business, medicine, nursing, pharmacy, business, law, and education. They also provide a general education, which itself prepares students for a broad range of occupations.

Liberal education is general in the breadth of intellectual development that it offers, but it is not superficial. The College of Liberal Arts offers 60 specific degree programs, each requiring extensive study in a particular academic discipline or area of interest. The array of educational programs available in the college gives students a wide choice of major and minor fields of study.

Regardless of the major a student elects, the college curriculum exposes all students to work in logic or quantitative reasoning and a foreign language, and requires a course in writing, speaking, and writing. Further, all students must become acquainted with the study of history, literature, social science, and fine arts, as well as with citizenship and culture shared in time or space.

These General Education Requirements are designed to enable students to understand the physical world in which they live, the social organizations in which they act, and the values of the civilizations they have inherited. The disciplines of scholarship and the creative work of artists and writers in this country have greatly expanded our knowledge of natural and social phenomena and clarified our understanding of society. The complexity of the modern world is not only our inherited accident but also our responsibility to understand it. This understanding, however, depends more than ever on acquiring a general education.

It is the mission of the College of Liberal Arts to make that general education available and to guide students through the many courses they have in common in a comprehensive curriculum that is the price of specialization. It develops the capacity to think in significant questions, to feel answers, to reject objects, to be free of repetition, and to adapt to change.

College Organization

The internal organization of the College of Liberal Arts reflects in multifaceted character. The college is composed of units of various types: departments, programs, and nondepartmental units. There are two divisions in the college: the Division of Fine Arts encompasses the School of Art and Architecture, and the Departments of Communication Studies, Dance, and Theater Arts. The Departments of Computer Science, Mathematics, and Statistics and Actuarial Science comprise the Division of Mathematical Sciences. Within the college there are six schools. In addition to the Schools of Art and Art History, there are Schools of Journalism and Mass Communication, Library and Information Sciences, Religious and Social Work. More than forty formally organized departments and programs provide instruction in the college and other means leading to one or more degrees, minors, or certification in a particular field.

The College of Liberal Arts is closely linked with the University's professional colleges. Some opportunities in other colleges offer degrees and minors in liberal arts; similarly, other colleges may award minors for work done in liberal arts. For example, students admitted to the teacher education program of the College of Education are degree candidates in the College of Liberal Arts. The College of Liberal Arts also provides instruction for nondegrees enrolled in the College of Business Administration, Engineering, Medicine, Nursing, and Pharmacy.

Degrees, majors, certificates, and programs of the College of Liberal Arts are described in full under separate entries in 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. Located in 110 Schaeffer Hall, it serves students who wish to declare or change majors, the the second-year elective option, or request special permission for a minor's signature for intermediaries, such as registration, late adding or dropping of courses, and late withdrawal of registration.

Major Fields

This college contains degrees as indicated in the following major fields. The B.G.S. and B.S. degrees are awarded with no major designations. Note: The B.C.S. degree is being phased out. Students interested in preparing for a particular profession should refer to "Interdisciplinary Studies" in this section of the Catalog.

Actuarial science—B.S.*

African-American studies—B.S.

American studies—B.A.

Ancient civilization—B.A.

Anthropology—B.A.

Art—B.A., B.F.A.

Art history—B.A.

Asian languages and literature—B.A.

Astronomy—B.A.

Bacteriology—B.S., B.A.

Biology—B.A., B.S.

Botany—B.A., B.S.

Chemistry—B.A., B.S.

Classics—B.A.

Communications studies—B.A., B.S.

Computers and information science—B.S.

Computing—B.S., B.A.

Computer science—B.A., B.S.*

Dance—B.A., B.F.A.

Dental hygiene—B.S.

Economics—B.A., B.S.

Elementary education—B.S., B.A.*

English—B.A., B.S.*

Exercise science—B.S.*

French—B.A., B.S.

Geography—B.A., B.S.

Geology—B.A., B.S.

German—B.A.

Greek—B.A.

Health education—B.A., B.S.

History—B.A.

Honors Programs

The University Honors Program offers special academic and extracurricular opportunities to outstanding students. Freshmen and sophomore may take advantage of special honors sections that are offered in some general education courses. At the junior and senior level, most departments offer honors seminars, independent and interdisciplinary studies, research, and social work. More than forty formally organized departments and programs provide instruction in the college and other means leading to one or more degrees, minors, or certification in a particular field.

The College of Liberal Arts is closely linked with the University's professional colleges. Some opportunities in other colleges offer degrees and minors in liberal arts; similarly, other colleges may award minors for work done in liberal arts. For example, students admitted to the teacher education program of the College of Education are degree candidates in the College of Liberal Arts. The College of Liberal Arts also provides instruction for nondegrees enrolled in the College of Business Administration, Engineering, Medicine, Nursing, and Pharmacy.

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Actuarial science—B.S.*

African-American world studies—B.A.

American studies—B.A.

Ancient civilization—B.A.

Anthropology—B.A.

Art—B.A., B.F.A.

Art history—B.A.

Asian languages and literature—B.A.

Astronomy—B.A.

Bacteriology—B.S., B.A.

Biology—B.A., B.S.

Botany—B.A., B.S.

Chemistry—B.A., B.S.

Classics—B.A.

Communications studies—B.A., B.S.

Computers and information science—B.S.

Computing—B.S., B.A.

Computer science—B.A., B.S.*

Dance—B.A., B.F.A.

Dental hygiene—B.S.

Economics—B.A., B.S.

Elementary education—B.S., B.A.*

English—B.A., B.S.*

Exercise science—B.S.*

French—B.A., B.S.

Geography—B.A., B.S.

Geology—B.A., B.S.

German—B.A.

Greek—B.A.

Health education—B.A., B.S.

History—B.A.

Honors Programs

The University Honors Program offers special academic and extracurricular opportunities to outstanding students. Freshmen and sophomore may take advantage of special honors sections that are offered in some general education courses. At the junior and senior level, most departments offer honors seminars, independent and interdisciplinary studies, research, and social work. More than forty formally organized departments and programs provide instruction in the college and other means leading to one or more degrees, minors, or certification in a particular field.

The College of Liberal Arts is closely linked with the University's professional colleges. Some opportunities in other colleges offer degrees and minors in liberal arts; similarly, other colleges may award minors for work done in liberal arts. For example, students admitted to the teacher education program of the College of Education are degree candidates in the College of Liberal Arts. The College of Liberal Arts also provides instruction for nondegrees enrolled in the College of Business Administration, Engineering, Medicine, Nursing, and Pharmacy.

Degrees, majors, certificates, and programs of the College of Liberal Arts are described in full under separate entries in the Catalog.
Minors

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

The college offers minors in the following fields: actuarial science, Afro-American studies, aging studies, American studies, ancient civilization, anthropology, art, Asian languages (Chinese, Hindi, Japanese, Sanskrit), African studies, American literature, history, chemistry, classics, communication studies, comparative literature, computer science, dance, economics, English, French, geography, geology, German, global studies, Greek, Hindi, Italian, journalism and mass communication, Latin, Latin American studies, linguistics, law, law and society, medicine, music, philosophy, political science, psychology, religion, Russian, social work, sociology, Spanish, statistics, theater arts, and women's studies.

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

Interdisciplinary Programs

A number of interdisciplinary programs in the College of Liberal Arts offer majors, minors, or certificates. These programs include African studies (certificate or option in B.A. in African-American world studies); Afro-American world studies (B.A. or minor); aging studies (minor or certificate); American studies (B.A. or minor); ancient civilizations (B.A. or minor); comparative literature (B.A. or minor); global studies (minor, certificate, or honors interdisciplinary major); international studies (B.A., international business (certificate); Latin American studies (minor or certificate), literature, science, and the arts (B.A.); philosophy and ethics of political power (certificate); Russian, East European, and Eurasian studies (B.A.); science education (B.S.); and women's studies (minor).

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

Honors Interdisciplinary Major

Honors students may pursue an individually planned order of study that crowns up to two or more departments, as approved by the honors advisors from the departments concerned and the director of the University Honors Program. The major consists of 36 semester hours of credit, including 6 semester hours of departmental honors registration and completion of an honors project. It leads to the degree "with interdisciplinary honors." Students must submit a plan of study for approval during their junior year.
The program described in the document is a 
interdisciplinary program developed by 
Liberal Arts students in environmental studies, 
European studies, international development studies, 
literature, history, and philosophy; and 
molecular and cellular biology.

**Baccalaureate with Early Admission to Medicine or Dentistry**

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

To be eligible for a baccalaureate degree from the College of Liberal Arts after early admission to the College of Medicine or Dentistry, students must meet certain requirements. Before enrolling in the medical or dental college, students must 
- satisfy the General Education Requirements; and 
- satisfy the residency 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 credit towards a baccalaureate degree from the College of Liberal Arts.

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

**Combined Degree Program: Engineering and Liberal Arts**

Students may earn a University of Iowa baccalaureate degree and a professional degree in a combined program in the College of Engineering and the College of Liberal Arts. Successful candidates are awarded a B.S. (Bachelor of Science in Engineering) by the College of Engineering and a B.A. (Bachelor of Arts), B.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 liberal arts degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the combined degree program are assigned two faculty advisors, one in their major department in the College of Engineering and the other in their major department in the College of Liberal Arts.

To enter the combined degree program, students must be eligible for admission to the College of Engineering. Interested students should schedule an appointment with the admission officer at the College of Engineering. Students must be approved for consideration in the combined degree program by the College of Engineering and must be admitted to both the College of Engineering and the College of Liberal Arts.

Students who enter the program are required to complete the General Education Requirements and the requirements for the major in the College of Liberal Arts.

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 vary according to the engineering major selected. Since courses in majors, sciences, humanities, history, and social sciences are accepted regularly for credit in both colleges, students may be able to satisfy the requirements of both colleges by taking a particular course.

To qualify for both the combined degree program, candidates must complete an overall total of 120 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 Degree Program: Medicine and Liberal Arts**

Students may earn two University of Iowa baccalaureate degree and a professional degree program in the College of Medicine and the College of Liberal Arts. Although both the college and their academic program in the College of Liberal Arts, their must be eligible for admission to the College of Medicine baccalaureate degree program in medicine, radiology, nuclear medicine technology, nuclear medicine technology, or physician assistant.

Students who select this program must meet the baccalaureate degree requirements specified by both colleges, and usually do so in about the academic year. The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the combined degree program are assigned two faculty advisors, one in their major department 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 120 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 at their college in the College of Medicine.

**Two Bachelor’s Degrees**

Students may be awarded two different bachelor’s degrees from the College of Liberal Arts, either simultaneously or sequentially. If they meet the requirements described below. For example, students 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).

**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.S.A., B.S. in interdisciplinary studies, and B.L.S. may not be awarded simultaneously with another degree.

**Returning for a Second Degree**

Students who already have been awarded a bachelor’s degree from the College of Liberal Arts and are not enrolled in a graduate or professional program may earn an additional, different bachelor’s degree. These students must be reenrolled in the college and must complete at least 30 additional consecutive hours of study in residence in the college beyond the first degree.

Students may not earn a second B.A. if they already have a B.A. from the College of Liberal Arts or a second B.S. if they already have a B.S. from the college. Instead, they may earn a second bachelor’s degree by fulfilling the “Returning for a Second Bachelor’s Degree” or “Major in the Major” in the section of the Catalog.

Holders of B.A. or B.S. degrees in liberal arts disciplines are considered to have satisfied all the General Education Requirements except foreign language. Holders of other degrees must satisfy the General Education Requirements.

Students with bachelor’s degrees from other colleges or universities may earn a bachelor’s degree from the College of Liberal Arts by completing the requirements described above.


**Total Hours Earned**

Students who enter a baccalaureate program must earn a minimum of 124 semester hours of credit. The number required of a transfer student is based on the student’s admission degree equivalent.
Satisfactory Grade-Point Average

The general requirements for graduation are listed below in detail as well as the quantity of work required.

Candidates for the B.A., B.S., B.F.A., and B.M. degrees satisfy the general requirements for graduation by earning a minimum grade-point average of 2.00 in all college work attempted, all work undertaken at The University of Iowa, and all work attempted in the same, including 2.00 at The University of Iowa major work.

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

Candidates for the B.G.S. degree must earn a grade-point average of at least 2.00 in all college work attempted toward the degree, all college work attempted after admission to the program, and all attempted college work.

Residence

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

No residence instruction includes course work at other colleges and universities, work completed prior to admission to other undergraduate colleges of The University of Iowa, and work by correspondence, including University of Iowa Correspondence Study courses.

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

Students in the combined degree program in the College of Engineering and Liberal Arts must complete 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.

Students in the combined degree program in the College of Medicine and Liberal Arts must complete 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.

General Education Requirements

Students must complete the following General Education Requirements for the B.A., B.S., B.F.A., B.G.S., B.M., and B.B. degrees. Unified Program students follow a specially pre-designed course of study that fulfills most General Education Requirements. See "Unified Program" below.

Rhetoric: one or two courses (4-8.5 s.h.)

Mathematics: for students admitted as degree candidates to the College of Liberal Arts before fall 1992, see "Mathematics", below.

Physical education: three or four courses (4 s.h.). B.S.L. students are exempt from this requirement.

Foreign language: fourth semester level of college language or fourth-year level of high school language (10 s.h.).

Foreign civilization and culture: one approved course (3 s.h.).

Historical perspectives: two approved courses (6 s.h.).

Humanities/fine arts: 6 s.h. The incorporation of literature and two approved courses (6 s.h.).

Natural sciences: two approved courses, one of which must have a laboratory component (7 s.h.).

Quantitative or formal reasoning: one approved course (3-4.5 s.h.).

Social sciences: two approved courses (6 s.h.).

Unified Program

The United Program (UP) is a four-semester series of general education courses for a small group of students who choose the program when they are freshmen. The UP satisfies all of the College of Liberal Arts General Education Requirements except the foreign language and physical education requirements, and each UP course is interchangeable with an equivalent approved course. All students in the UP take the same four courses each semester. Students may leave the program at any time and satisfy the General Education Requirements in other ways, but only transfer credit enter the UP. See "Unified Program" in the Catalog.

Rhetoric

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

All rhetoric students, regardless of the number of hours they transfer, must satisfy the rhetoric requirement.

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

- by passing 101 and 102 Rhetoric I and II (8 s.h.)
- by passing 103 Accelerated Rhetoric (4 s.h.)
- by passing the speech test and 10-4 Writing and Reading (3 s.h.)
- by passing the essay test and 10-3 Speaking and Reading (3 s.h.)
- by passing both the speech and essay tests

Proficiency Examinations

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

Students who have undergone formal assessment or been diagnosed with Disabilities and who are found to be learning disabled in rhetoric may request reasonable accommodations in order to complete the rhetoric requirement satisfactorily. Such accommodations may be arranged by the Office of Services to Persons with Disabilities and approved by the Department of Rhetoric.

Mathematics

Students admitted as degree candidates to the College of Liberal Arts before August 1990 must satisfy a mathematics requirement. The requirement is satisfied by two years of high school algebra and one year of high school geometry, by satisfactory test scores, or by courses taken at The University of Iowa or another institution. Complete information is available in the Office of Academic Programs.

Physical Education

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

- by completing four semester hour courses in physical education with 285 (or 285A), for a total of 4 semester hours; or
- by completing 285R, Fitness and Wellness for Life (2 s.h.) and two 1 semester hour courses in physical education, for a total of 4 semester hours.

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

Only courses 285A, 285R, and 285A may be used to satisfy the requirement. Courses 285A and 285A may be repeated after a 10-week interval for a maximum of 285A 20 hours, and 285A are skill courses, and courses under these numbers have activity or sports titles and levels of proficiency. 285R designation courses may not be repeated after the fourth or eighth semester. 285A designates those courses for the second half of the semester. 285R Fitness and Wellness for Life (2 s.h.) is a lecture-discussion course, counts for the entire semester. Students who take 285A must meet the requirements of the requirement by taking two 1-semester hour skill courses.

If a student repeats the same skill course or takes a more elementary section, the Office of the Registrar assigns a "R" for either duplication or regression. In re-taking incomplete or using the second-semester only system, students must complete or retake the same activity or sport at the advanced level.

Exemption Tests

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

TRANSFER STUDENTS

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

- be transferring 4 semester hours of college physical education course work (skills, sports, and activities)
- by achieving a valid score (60 or above) on the TOEFL test of the University of Iowa
- by earning enough credit in physical education at Iowa to make a total of 4 semester hours combined with physical education credit transferred from other colleges.

OLDER STUDENTS

Students who have passed their twenty-third birthday before their first semester at the University or will pass their twenty-eighth birthday before the date of their graduation are exempted from the physical education requirement.

VETERANS

Veterans may be exempted from this requirement by presenting to the Office of the Register official evidence of having completed a basic training program in a branch of the armed forces.

B.S. STUDENTS

Graduates for the B.S. degree are exempt from the physical education requirement.

Foreign Language

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

All degree candidates (B.A., B.S., B.F.A., B.G.S., B.L.R.S., and B.M.) admitted to the College of Liberal Arts fall semester 1990 and after must satisfy the foreign language requirement. In one of the following ways:

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

B.S., B.F.A., B.G.S., and B.M. candidates who were admitted to the College of Liberal Arts before fall semester 1990 and who will graduate by August 1994 may satisfy either the fourth-semester level requirement described above or a second-semester requirement. Complete information is available in the Office of Academic Programs.

B.A. candidates must satisfy the fourth-semester requirement regardless of their area of administration.

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

FREEDOM LANGUAGE PLACEMENT

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

Results from the placement test are used to determine the level at which students begin their language study at The University of Iowa.

In determining placement, academic advisors also consider number of years studied in high school or college, grades earned, experience abroad or with native speakers, and length of time skipped since the language was last studied, if such considerations would result in a higher placement.

Effective fall semester 1992, entering students who place at the third-semester level or higher:

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

Entering students who place below the third-semester level may:

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

Students who have not met the entrance requirement in a foreign language but who place below the third-semester level are not permitted to register for a free - or semester-credit course in that language.

If a student continues study of that language, they must register for the designated review course (e.g., 9:10 Fall-Year French Review, 13:14 First-Year German Review, or 30:5 Elementary Spanish Review).

FOREIGN LANGUAGE INCENTIVE PROGRAM

The Foreign Language Incentive Program enables entering students to earn extra college credit. Entering students who place into a fourth-language semester 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 fourth- and fifth-semester courses. The credit is ungraded but counts toward the hours required for graduation. Incidental (non graded) credit is not granted for college courses for which transfer credit has been awarded.

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

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

SATISFYING THE REQUIREMENT BY EXAMINATION

Students proficient in a language for which they have received oral or written examination or instruction below the fourth-semester level may validate that proficiency on an examination.

Foreign Languages Offered at Iowa

Students proficient in French, German, or Spanish should take one of the University of Iowa placement examination regularly administered to entering students during the summer orientation programs and each semester just before the opening of classes. Proficiency examinations in Chinese, Dutch, ancient Greek, Hindi, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, and Swahili are arranged through the designated department. Academic credit is not awarded for successful completion of these examinations. Students who earn satisfactory scores on Advanced Placement Program examinations in French, German, Latin, or Spanish may be awarded credit. Information is available from the Evaluation and Accreditation 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 placement. In some cases, arrangements can be made for an on-campus proficiency evaluation. Examinations are held for a limited number of foreign languages, however, Cymru, Cymraeg, English, Hebrew, Italian, Korean, Latin, Low German, Norwegian, Polish, Portuguese, Russian, Swedish, Spanish, and Vietnamese. Academic credit is not awarded for successful completion of these evaluations. Students proficient in a language for which testing is not available must complete the requirement by the approved method.

STUDENTS WITH DOCUMENTED LEARNING DISABILITIES

Students who have undergone formal assessment by the Office of Services for Persons with Disabilities and are found to have a language learning disability may substitute another approved course to satisfy the foreign language requirement. Such substitutions must be approved in the Office of Academic Programs.
FOREIGN STUDENTS AND THE FOREIGN LANGUAGE REQUIREMENT

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

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

SOURCES OF COURSES THAT SATISFY THE FOREIGN LANGUAGE REQUIREMENT

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

Chinese: 3 sh. 1-29 or 30-89
Dutch: 130-111 or 1-21
French: 311-119 or 9-110 followed by 9-112, or 9-105-12, or 9-105-26, or 9-105-105
German: 131-112 or 12-13 or 13-14 followed by 12-13-26, or 12-13-26
Greek: 14-1-21-12
Hindi: 391-133-33-54
Italian: 18-111-12 or 18-103-11-12
Japanese: 391-129 or 39-9-9
Latin: 110-15-17 or 20-15-16-17 or 20-171-16-17
Portuguese: 38-1-32 or 20-100 followed by 30-11-12 or 38-10
Russian: 41-1-24-34 or 41-101-102
Sanskrit: 39-1-32-23-24
Spanish: 35-1-2 or 35-8 or 35-3 or 35-5 followed by 35-12 or 35-13
Swahili: 102-15-16-17 or 102-15-12 or 141-15-16-17

FOREIGN CIVILIZATION AND CULTURE

Students must complete at least 3 semester hours from the course listed below. Some courses used to satisfy this requirement also may be approved in society, in part, the historical perspectives, humanities/art, or social science requirements.

110 Western Art and Civilization Before 1400 3 sh.
116 Western Art and Culture After 1400 3 sh.
140 Islamic Art and Civilization 3 sh.
166 Arts and Art Culture 3 sh.
184-194 Literatures of the African Region 3 sh.
213-219 French Civilization 3 sh.
219-24 French and Francophone Literature and Culture 3 sh.
311 French Cinema and Culture 3 sh.
311-111 Introduction to Modern German Literature 3 sh.
311-112 Introduction to Modern German Literature II 3 sh.
311-115 Contemporary German Civilization 3 sh.
311-118 The Third Reich and Literature 3 sh.
311-119 The Classical View 3 sh.
161 Western Civilization to 1792 3 sh.
162 Western Civilization Since 1792 3 sh.
165 Civilizations of Asia 3 sh.
166 Civilizations of Africa 3 sh.
310-112 Science and Art in World Perspective 3 sh.
311-113 Latin America 3 sh.
311-114 Introduction to Modern Latin America 3 sh.
311-115 The Mexican Revolution 3 sh.
311-116 History of Ancient and Traditional India 3 sh.
311-117 History of Imperial and Modern India 3 sh.
311-118 Traditional China 3 sh.
311-119 Modern China: 1860 to the Present 3 sh.
311-122 History of Greece 3 sh.
311-123 The Historiographic World and Rome 3 sh.
311-124 Medieval Civilization 3 sh.
311-125 Economic and Social History of Medieval Europe 3 sh.
311-126 History of the Medieval Church 3 sh.
311-127 The Islamic Renaissance 3 sh.
311-128 Cultural Transmission in Europe: Law, and Art 1250-1500 3 sh.
311-128 Revolutionary Reformations, 1520-1750 3 sh.
311-129 Society and Gender in Europe 1200-1789 3 sh.
311-130 Sixteenth-Century Europe 3 sh.
311-131 French Revolution and Napoleon 3 sh.
311-132 France from 1815 to the Present 3 sh.
311-133 Society and Gender in Europe 1750-1914 3 sh.
311-134 Native American and Ojibwe History 3 sh.
311-136 Germany Since 1848 3 sh.
311-137 English Peasants: Their Life, 1000-1500 3 sh.
311-138 Inca Civilization 3 sh.
311-139 The European World and its 3 sh.
311-140 World Music 3 sh.
311-141 Soviet and Post-Soviet Politics 3 sh.
311-142 Socialist and Communist 3 sh.
311-143 Soviet Union and Communist Europe 3 sh.
311-144 Politics in Post-Communist Eastern Europe and Asia 3 sh.
311-145 Government and Politics of the Far East 3 sh.
311-146 Latin American Government 3 sh.
311-147 Social Development, Latin America 3 sh.
311-148 African Development 3 sh.
311-149 The Political of Southern Africa 3 sh.
311-150 The African Development 3 sh.
311-151 African Development 3 sh.
311-152 African Development 3 sh.
311-153 African Development 3 sh.
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311-182 African Development 3 sh.
311-183 African Development 3 sh.
311-184 African Development 3 sh.
311-185 African Development 3 sh.
2-8: Human Genetics 3 s.h.
4-5: Genetics and Society 3 s.h.
4-5: Technology and Society (Lab) 4 s.h.
4-6: General Chemistry I 3 s.h.
4-8: General Chemistry II 5 s.h.
4-13: Principles of Chemistry I 3 s.h.
4-14: Principles of Chemistry II 3 s.h.
4-16: Principles of Chemistry Lab 1 s.h.
12: 1 Lecture in Earth History and Resources 2 s.h.
12: Evolution and the History of Life (Lab) 2 s.h.
12: Introduction to Geology (Lab) 2 s.h.
12: Introduction to the Earth (Lab) 2 s.h.
12: Lecture in Evolution and the History of Life 2 s.h.
12: Earth History and Resources (Lab) 4 s.h.
12: 12 Introduction to Environmental Geology (Lab) 3 s.h.
20: 19 Chemistry and Physics of the Environment 3 s.h.
20: Basic Physics 3 s.h.
20: Basic Physics (Lab) 4 s.h.
20: 11 College Physics (Lab) 4 s.h.
20: 12 College Physics (Lab) 4 s.h.
20: 17 Introductory Physics I (Lab) 4 s.h.
20: 18 Introductory Physics II (Lab) 4 s.h.
20: 20 Modern Astronomy 3 s.h.
20: 25 Modern Astronomy (Lab) 4 s.h.
20: 27 Introductory Astronomy Laboratory (Lab) 1 s.h.
20: 52 Characteristics and Origins of the Solar System 3 s.h.
20: 51 General Astronomy (Lab) 4 s.h.
20: 52 General Astronomy (Lab) 4 s.h.
44: Introduction to Physical Geology 4 s.h.
113: 13 Human Origins 3 s.h.

**Transfer Credit in Natural Sciences**

Transfer students must complete a total of 7 semester hours of approved courses at the University of Iowa or at another college or university. If their transfer work does not include a course with a laboratory component, students must complete one of the approved laboratory courses listed above.

**CPEP Credit in Natural Sciences**

Students who score at or above the 70th percentile on one of the subtests of the CPEP general examination in natural sciences are awarded 3 semester hours of credit toward the natural sciences requirement. They must complete the requirements by taking an approved 3-semester-hour laboratory course.

*Students who score at or above the 70th percentile on any subtest of the CPEP natural science general examination are awarded 3 semester hours of credit toward the natural science requirement and 3 semester hours of elective credit. They must complete the natural science requirement by taking an approved 3- or 4-semester-hour laboratory course.*

**Quantitative or Formal Reasoning**

This requirement may be satisfied by completing one of the courses listed below or by completing a more advanced course that has been approved as a prerequisite. Students should fulfill the requirements by the end of the second year in residence or during the first 8 semester hours of study at the University of Iowa.

70-25 Elementary Statistics and Inference 3 s.h.
70-26 Course in Probability with Applications 4 s.h.
220:11 Introduction to Calculus with Applications 4 s.h.
220:13 Mathematics for the Biological Sciences 4 s.h.
220:14 Calculus for the Biophysical Sciences 4 s.h.
220:17 Quantitative Methods I 4 s.h.
220:18 Elementary Functions 4 s.h.
220:23 Calculus I (with Applications) 4 s.h.
220:35 Engineering Calculus I 4 s.h.
220:45 Advanced Calculus I 4 s.h.
220:51 Statistics and Society 3 s.h.
220:67 Quantitative Methods II 4 s.h.
225:25 Elementary Statistics and Inference 3 s.h.
225:30 Principles of Reasoning 4 s.h.
300:70 Theory and Practice of Argument 4 s.h.
101:13 Language and Formal Reasoning 3 s.h.

**Social Sciences**

Students must complete at least 6 semester hours from the course list below.

62:1 Principles of Microeconomics 4 s.h.
62:2 Principles of Macroeconomics 4 s.h.
79:100 Politics of Education 3 s.h.
79:300 Psychology of Adolescent Learning 3 s.h.

15:1 Social Science Perspectives on Contemporary Africa 3 s.h.
14:2 Social Science Perspectives on Contemporary Africa 3 s.h.
14:3 Social Science Perspectives on Contemporary Africa 3 s.h.
34:2 Introduction to Sociology: Principles 3 s.h.
308:25 Mass Media and Mass Society 3 s.h.
330:50 Communication Theory in Everyday Life 4 s.h.
44:1 Introduction to Human Geography 4 s.h.
44:1 Introduction to Social Geography 4 s.h.
44:1 Introduction to Environmental Geography 4 s.h.
44:1 African Development 3 s.h.
47:1 Global Inequality and Human Survival 3 s.h.
50:1 Language and Human Behavior 3 s.h.
113:119 Urban Anthropology 3 s.h.
159:20 Introduction to Afro-American Studies 3 s.h.
129:21 Social Science Perspectives on Contemporary Africa 3 s.h.
141:21 Social Science Perspectives on Contemporary Africa 3 s.h.
141:166 African Development in History 3 s.h.

**General Education Requirements and Waivers**

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

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

No more than three courses from one department: Students may use no more than three approved courses from one department to satisfy the General Education Requirement (other than English or language) requirement. Students may use up to four approved courses from a single department.

Departmental waivers of General Education Requirements: Departmental waivers are in effect for B.S. or B.A. candidates. However, with the approval of the Educational Policies Committee, departments may waive up to 7 semester hours of General Education Requirements for both B.A. and B.S. candidates in the major or a minor or an interdisciplinary program. Approved waivers are listed in the current Academic Calendar of Courses and in the section of the catalog.

**Placement and Exemption Examinations for General Education**

Satisfactory performance on tests administered at The University of Iowa may lead to full or partial exemption.
Restrictions and Limits on Semester Hours Applied Toward a Degree

- A maximum of 15 semester hours of credit with a grade of B or better and 6 with a grade of C (satisfactory) is accepted toward the 124 semester hours required for graduation. B.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.

- After a student has earned 50 semester hours of degree credit from all sources, no more credit is accepted by transfer from a two-year college to meet the 124 semester hours required for graduation. If a student has earned more than 60 semester hours of degree credit from a two-year college, the credit and grades earned will be used to satisfy course requirements, but the credit does not count toward the total hours credited for graduation.

- A maximum of 30 semester hours of credit from one academic department is accepted toward a B.A. or B.S. toward a B.F.A. and 40 toward the B.G.S. or B.B.A. in interdepartmental studies. This includes both University of Iowa and transfer course work.

- Candidates for the B.G.S. or B.B.A. in interdepartmental studies may count no more than 18 semester hours of advanced coursework from any one department toward the 36-semester hour advanced course requirements.

- A maximum of 16 semester hours of vocational technical credit is accepted in transfer toward the 124 semester hours required for graduation.

- A maximum of 20 semester hours of ROTC credit is accepted toward the 124 semester hours required for graduation.

Courses without Degree Credit

Courses 101B, 1010, 1019, 22M1, 22M2, and 230M carry no degree credit. Students who take these courses, or courses equivalent to them at another college or university, must complete additional semester hours beyond the 124 required for graduation. Although these courses carry no degree credit, grades awarded in them are used in computing grade point averages, and the hours count toward semester loads for all official purposes (e.g., full-time and half-time status, maximum schedule, minimum semester-hour requirement, reasonable academic progress, dean's list eligibility, etc.).

Requirements for the Major

Specific requirements for majors offered in the College of Liberal Arts are listed in the departmental sections of the Catalog. Students should consult their advisor in evolving plans for a major.

A maximum of 50 semester hours of credit from other academic departments is accepted toward a B.A. or B.S. degree; 50 toward a B.F.A.; and 40 toward the B.G.S. or B.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 credits toward the requirements for a major. Students are advised to check with their department.

Courses in the major department now are based on a pass/no-pass 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/no-pass, if available, at the discretion of the major department. 5 (elective) grades are made in computing grade point averages.

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

Declaring or Changing Majors

Liberal arts students declare or change majors in the Office of Academic Programs, 116 Schaeffer Hall, where a staff member assists the student electronically and assigns a new advisor.

Students wishing to major in another college or university must be admitted to that college.

Students interested in the Bachelor of General Studies (B.G.S.) or B.B.A. in interdepartmental studies must first schedule an informal interview with an appropriate advisor in the Office of Academic Programs to discuss preparation of a plan of study. Students interested in a specific major must consult with the departmental chairperson or advisor for that major. All students must be enrolled in the College of Liberal Arts to be eligible for the B.G.S. or B.B.A. in interdepartmental studies.
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 their departments or programs offer the same degree in the College of Liberal Arts. For example, a student may earn a B.A. in English and a B.S. in psychology and sociology.

When a single department offers a degree in more than one subject (such as physics and astronomy or Spanish and Portuguese), students may earn a double major, a minor, and a minor, or two minors, offering these degree programs. All students must earn a minimum of 56 semester hours in courses taken outside their department.

Students seeking double majors in the programs within the Division of Mathematical Sciences (actuarial science, computer science, mathematics) and 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 University of Iowa and who are not enrolled in a graduate or professional program may complete the requirements for a second major. Students must, upon their application, register as säsThs (44).

Students who return to the University to complete a second major must meet the requirements of that second major, they need not satisfy the requirements of the student’s responsibility to apply to graduate specializations 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 that the student has returned to the University to complete the requirements for a second major developed out of their liberal arts minor.

Minors

Liberal Arts Minors

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

Requirements

The requirements listed 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. The advanced coursework acceptable in the academic unit granting the minor. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work.

Students should check with the minor department to identify acceptable courses.

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

Guidelines

Each academic unit determines which of its advanced courses are considered acceptable for a minor. Students seeking information about acceptable courses should consult the minor departmental office.

Some programs in the college that do not offer a bachelor’s degree offer minors. For example, minors may be earned in aging studies, global studies, Latin American studies, and women’s studies.

Students seeking the Office of the Registrar of 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 have not completed a graduate or professional program may complete the requirements for a minor and apply to the Office of the Registrar to have a minor noted 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.

Course work applied toward the minor may be used to satisfy the General Education Requirements.

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

University of Iowa General Correspondence

Sophistry courses are acceptable toward the minor.

Restrictions

Course work applied toward a minor may not be used to satisfy requirements for a major. (Students earning minors in Latin American studies are an exception to this rule. They may count up to 5 semester hours from their major department toward the minor.

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

Candidates for the B.S. or B.S.E. are not eligible for minors.

The following degree granting programs do not offer minors: bachelor’s; interior; dental hygiene; elementary education; exercise science; general studies; health occupations education; international studies; liberal studies; literature, history, and the arts; social studies; rigorous; East European and Eurasian studies; and speech and hearing science. A minor in science education is offered through the College of Education.

Liberal Arts Minors for Students in Business Administration, Engineering, Medicine, and Nursing

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

Minor in Business Administration

Students in the College of Liberal Arts may earn a minor in business administration. The minor is limited to 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 3.00 is required in all courses taken for the minor and in all of these courses taken at Iowa.

60.99 Computer Analysis

Business calculus (222M-15; 223M-17, 224M-19) 3 s.h.

Statistics (171-14; 225-19, 226-19, 228-19) 3 s.h.

226-19, 228-12; 226-12, or 51-14) 1 s.h.

61.1 Principles of Microeconomics

61.99 Principles of Macroeconomics

61.5 Introduction to Business Administration

61.100 Introductory Financial Management (or 57-14) 3 s.h.

60.100 Administrative Management. 3 s.h.

"Must be taken in junior or senior year.

Accelerated Professional Track

For superior students in the College of Liberal Arts, a minor in any degree granting program in the College of Liberal Arts may be a matter of Business Administration (M.B.A.) at The University of Iowa, the accelerated professional track offers an accelerated admission to the business minor.

Students pursuing an undergraduate degree in a field other than business while taking M.B.A.

0.99 Business Administration

Business calculus (222M, 223M, 224M) 3 s.h.

Statistics (171, 225-19, 226-19, 228-19) 3 s.h.

226-19, 228-12; 226-12; 51-14) 1 s.h.

61.1 Principles of Microeconomics

61.99 Principles of Macroeconomics

61.5 Introduction to Business Administration

61.100 Introductory Financial Management (or 57-14) 3 s.h.

60.100 Administrative Management. 3 s.h.

"Must be taken in junior or senior year.
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 early childhood education, special education, music education, and physical education. Contact the Office of Student Services and First Year Experience in the College of Education for specific requirements.

Registration

Late Registration

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

Classification of Students

<table>
<thead>
<tr>
<th>Rank</th>
<th>Semester</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>0-20</td>
<td>A1</td>
</tr>
<tr>
<td>Sophomore</td>
<td>21-30</td>
<td>A2</td>
</tr>
<tr>
<td>Junior</td>
<td>31-60</td>
<td>A3</td>
</tr>
<tr>
<td>Senior</td>
<td>61 and over</td>
<td>A4</td>
</tr>
</tbody>
</table>

Special (nondegree) student A9

Changes in Registration Initiated by the Student

Adding and Dropping Courses

Once classes have begun, courses may be added during the first three weeks of the semester (or the first one and one-half weeks of the summer session) with the signatures of both the instructor and mandatory registrar. However, students are not allowed to register during the third week of the semester (or first one and one-half weeks of the summer session). Students must request the dean's signature in the Office of Academic Programs.

Special courses that must be 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 anytime during the first one-third of the course's duration. Precompletion registration deadlines operate during the usual eight-week summer session and for other special session courses.

Withdrawal of Registration

Students may withdraw their entire registration anytime before the end of the ninth week of the semester or sixth week of the summer session. No credit is given for the withdrawn classes, and students who withdraw registration must be retested for the class(es) they are withdrawing from. Withdrawal forms are obtained in the Office of the Registrar.

Student Responsibility

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

Instructor's Option to Drop for Nonattendance

To prevent vacancies in crowded classes, instructors may drop students who have not attended any class sessions during the first eight calendar days of the semester (or the summer session, unless the students have attended an acceptable number of class sessions to begin the course). It is the instructor's right to drop students on this basis, and students should not be used in these circumstances if they do not exist. These drops also make it possible for the instructor to cancel the course if necessary. Students should not assume that they have been dropped automatically from a course because they have not attended it.

Auditing Courses

Instructors in the College of Liberal Arts may audit a course (reduce in turn the number of semester hours) if approval is granted by the dean of the college in which the course is offered. Instructors must assign the grade of R (incomplete) if the student's attendance and performance are satisfactory; if they are unsatisfactory, the grade of W (withdrawn) is assigned. Courses offered only for audit credit are graded only for audit credit. Grade is given for audit credit, and students are not allowed to register for credit. Audited courses carry a grade of R if students do not meet college requirements and must finish the course and pass it for credit.

To become an auditor during early registration, a student must obtain special permission/approval from the instructor. To add a course for the first time, students must attend the opening of the semester, a special session, or a Change of Registration form.

Changes from credit to audit or from audit to credit must be made within the first twelve weeks of the semester (or first five and one-half weeks of the summer session); using a Change of Registration form and obtaining the necessary number of semester hours, a student drops the course and abides it for the desired hours.

Instructor(s)
Grading

Grading System

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

<table>
<thead>
<tr>
<th>Grade (Description)</th>
<th>Grade point for each semester hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.33</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>F (failing)</td>
<td>0.00</td>
</tr>
</tbody>
</table>

H = honors
U = incomplete
N = no grade
P = passing
R = audit
W = satisfactory
UW = unsatisfactory (Graduate College only)

*Not used in computing grade-point averages

Policies for Plus/Minus Grading

The grading system was expanded to include plus and minus grades effective with grades reported for the summer session 1998. The following policies govern the use of plus/minus grading in the College of Liberal Arts.

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

The grading system used by an instructor must be applied to all students as a given class. The grading system must be all sections of a developmental course.

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

Grade-Point Average (GPA)

The cumulative grade-point average (GPA) is computed by:
(a) multiplying the number of semester hours in each course by the appropriate grade point,
(b) adding the grade points earned in each course, and
(c) dividing the sum in (b) by the number of hours attempted, excluding courses in which grades of I, N, C, P, R, S, or W have been given.

Grades of F are included in hours attempted and are used in computing the GPA. Although grades of A+ and A are A grades for all purposes, the student's GPA, the cumulative undergraduate GPA, at the time the permanent record is transcribed as A or A-.

Incomplete (I)

Instructors may report a grade of I (incomplete) only if the uncompleted part of the student's work is in a course other than in research, thesis, or internship study. In reality, it is often impossible to scale a student to a regular student in the course. The work in the course may be completed at the instructor's discretion, and the student's standing in the course is satisfactory. Courses may not be repeated to remove (incomplete). Incomplete grades must be removed by the student before the time of the examination period of the next semester for which the student is registered, except that students with incompletes from the spring semester are exempt from the need to complete the work during the succeeding semester period. Failure to remove the I by day date results in it being assigned for work incomplete.

No Grade Reported (G)

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

The O designation on a student's permanent record may be changed to an N or I according to the procedures for incompletes and Incompletes. Instructors may remove the O by the designated deadline will result in an F being assigned for each O.

Pass/No Pass Option (P/N)

Students in the College of Liberal Arts have the option of taking elective courses on a P/N basis. The instructor may designate a minimum inferior grade, which is converted automatically in the Office of the Registrar to a grade of P or N. A, B, C, D, F are reported on the official transcript. Courses in the College of Liberal Arts are not used in computing grade-point averages, except when the grade of N does not count as hours earned in the graduation. Students may register for P/N beginning the first day of classes through the end of the third week of the semester for the first eight weeks of the summer session. For courses that start and end prior to the beginning and end of the semester, students may register for P/N anytime during the first four weeks of the duration of the course. Signatures of both the instructor and the advisor must be obtained on a P/N form, and the form must be submitted to the Registrar's 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.
Rural grading may be used in elective courses only. Courses used to satisfy major requirements or educational requirements may not be taken R/N. Course work in the major department is not available on an R/N basis, except by departmental action for courses that are not to be applied toward the major. This restriction applies to both University of Iowa and transfer course work. Courses required for the major in cognate or related areas may be taken R/N if approved, at the discretion of the major department. No course accepted toward the major may be taken R/N.

A maximum of 16 semester hours of R grades from all colleges is accepted toward the bachelor's degree. Transfer students admitted to the University with fewer than 60 semester hours of credit may sum the maximum of 10 semester hours of R grades. Those admitted with 60 or more semester hours are limited to 8 semester hours.

A maximum of two R/N grades may be taken in any session.

Satisfactory/Fail Grading (S/F)

Certain courses in the College of Liberal Arts are offered S/F and are designated in the Schedule of Courses. All students registered for these courses receive either an S or an F.

The grade of S is not used in computing grade-point averages, but the grade of F is used. Credit with the grade of S may be applied toward the General Education Requirements or toward requirements in the major or minor. The grade of F does not count as hours earned for graduation.

Special terms are not necessary to register for S/F classes, since all students enrolled in such courses automatically receive either an S or an F.

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

Second-Grade-Only Option

Students may repeat courses taken at The University of Iowa with the grade of D or D- and be assigned R grades in the course, and have only the grade of credit or no credit recorded on the transcript. Total credits 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 A) 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 and are assigned the grade of R for adding the course (those who do not have the third week of the semester or the four and one-half weeks of the summer session). Students also must file for the Second-Grade-Only Option with The Office of the Dean of Academic Programs. Unless this is done, both grades continue to be counted in the grade-point average.

Restrictions

The second-grade-only option may be used only by University of Iowa courses, including courses in the Saturday and Evening Credit Program, distance learning, and off-campus courses. A course taken at another college or university may not be repeated at The University of Iowa unless the second-grade-only option, or may be a University of Iowa course be repeated at another institution. Students may apply the option to a maximum of three courses. The option may be used only once per course, and it may be used if obvious 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 for credit/no credit the first time, it may be taken pass/no pass or for a grade the second time.

A course taken merely as a pass/fail is not repeated by enrolling in Correspondence Study (CSC) under the second-grade-only option. A course taken through CSC may be repeated through CSC or regular registration.

The second-grade-only option was implemented in fall semester 1984. Courses taken before that time are not eligible.

Mid-Semester Reports

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

Grading Grievances

Grading grievances should be resolved with the instructor who assigned the grade. If the student and instructor cannot resolve the matter, the student should discuss it further with the departmental executive officer or faculty member supervising a multidisciplinary course. The departmental executive officer may not assign the student grade a grade lower than the grade for academic programs. The Office of Academic Programs publishes a handbook on grading grievance, which describes the procedures and restrictions.

Academic Standards

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

Academic Probation

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

Freshmen (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

Special students (0-5 s.h.) 2.00

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

A course taken as a pass/fail (R/N) grading option may not be used by students on academic probation; however, a grade of credit/no credit is permitted. Freshmen and transfer students may be admitted on probation if they fail to meet the minimum standard standards for admission on "Admission Requirements," below.

Dismissal

Freshmen admitted unconditionally (not on probation) are subject to dismissal from the College after one semester on academic probation. Probationers admitted on probation are subject to dismissal after two consecutive semesters on academic probation. Continuing students are subject to dismissal after two consecutive semesters on academic probation. Students on academic probation who withdraw from enrollment after the eighth week of the semester are subject to dismissal at the close of that semester. Very poor academic work in any semester may result in dismissal at the close of that semester.

Right to Appeal

Students who can document that their unfavorable academic action 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 made to the Student Appeals Committee, Office of Academic Programs, 145 Schaeffer Hall. The decisions of the committee are final. No appeals are considered for revocation of a dismissal that would permit enrollment in a summer session.

Reinstatement to the College

Students dismissed for unsatisfactory scholarship for the first time are not permitted to register again for one year. Students dismissed a second time are not permitted to register for at least two years. Requests for reinstatement must be made in writing or in person, and should be addressed to the assistant dean, Office of Academic Programs, 146 Schaeffer Hall. Arrangements for a reinstatement interview may 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.
Final Examinations
A suitable period for the administration of examinations is set aside at the end of each semester, during which all classes are held. With the exception of any changes authorized by the dean or academic programs, all final examinations must be given according to the schedule as announced in the Schedule of Classes. During the summer session, there is no designated final examination period; final examinations are administered before the official end of the regular sessions, either during a regular morning 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, 186 Schaeffer Hall.

Student Conduct
Plagiarism and Cheating
An instructor must notify a student suspected of plagiarism or cheating as soon as possible after the incident has been observed or discovered and before the student learns of the action that will be taken. The departmental or institutional executive officer may decide to reduce the student’s grade in the course, even to assign a grade of F.

All cases of plagiarism or cheating in the college should be reported to the Office of Academic Programs. The departmental executive officer needs a written report of the fact in case and the action taken by the instructor to the dean of Academic Programs. A copy of this report should be sent to the student.

The associate dean for academic programs or the committee on Student Academic Conduct may uphold, as the case may warrant, the following or other penalties: statement on disciplinary probation until graduation; suspension from the college for a semester or longer; or recommendation of expulsion from the university by the president.

Forfeiture
The Code of Student Life prohibits forgery of University records, documents, or student identification cards. The Office of Academic Programs investigates students suspected of forgery and takes disciplinary action based on the interview and verification provided by the advisor or instructor.

Classroom Disruption
Students who are physically or verbally disruptive in a classroom or laboratory may be dealt with summarily by the instructor or referred to the dean of student services, 114 Levy Hall. The instructor reports in writing to the dean of student services any disciplinary action undertaken against a student.

Recognition for Academic Achievement
Dean’s List
Liberal arts students who achieve grade-point averages of 3.50 or above during a given semester or more semester hours of graded work (excluding University of Iowa Guided Correspondence Study courses and those who have no hours of 1 (incomplete) or 0 (no report) are recognized by inclusion on the Dean’s List for that semester, and a notation to this effect is entered on the student’s permanent record.

Graduation Honors
High scholastic achievement is recognized upon graduation in two ways: graduation with distinction, based upon grades only; and graduation with honors in a particular field, based on both grades and the completion of special work as outlined by the college and the major department.

Graduation with Distinction
The Office of the Registrar certifies to the dean of the college the names of students eligible to graduate with distinction. The college awards degrees “with highest distinction” to students in the highest two percent of the graduating class. “With high distinction” to students in the next highest three percent, and “with distinction” to the next highest four 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 College of Liberal Arts at the University of Iowa, of which at least 40 semester hours must have been completed before the student’s final registration.

Graduation with Honors
The director of the University Honors Program certifies to the dean of the college the names of graduating students eligible to graduate with honors. To be eligible, students must be recommended by their major department and approved by the Honors Council and the dean of the college.

Admission Requirements
Students are admitted to the College of Liberal Arts on the basis of three criteria: completion of a year of high school units required, high school class rank or college transfer grade-point average, and ACT/SAT results or a combination of high school grades and standardized test scores. Some programs within the College of Liberal Arts have selective admission procedures. Admission to these programs is based on grades in specified prerequisite courses, the cumulative grade-point average, and other criteria.
The University of Iowa requires all freshmen and transfer students who are present fewer than 24 semester hours of transferable credit to complete either the American College Test (ACT) or the Scholastic Aptitude Test (SAT) 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, or 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 faculty of the College of Liberal Arts recognizes the need for entering students to be prepared for college 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 water requirements listed below. These high school unit requirements, effective fall semester 1990, apply to entering freshmen who graduated after high school before 1985, transfer students with fewer than 24 semester hours of transferable credit who graduated after high school after 1985, transfer students with 24 or more semester hours of transferable credit who graduated after high school to 1991 or after.

Four years of English/language arts, with emphasis in writing, speaking, and reading as well as understanding and appreciation of literature. Four years of mathematics (two years of algebra and one year of geometry are required.) Two years of a single foreign language. Three years of natural science (two years must be chosen from biological sciences, chemistry, and physics.) Three years of social studies (American history, world history, government, world history, psychology, and sociology.)

The following preparation is not required but is strongly recommended for students planning to attend the College of Liberal Arts.

One year of the visual arts, performing arts, and/or humanities (art, drama, literature, music, photography, studio art, theater, visual arts, and/or survey courses in the arts and humanities.) An additional two years of the same foreign language. Students whose high school curriculum did not provide the courses necessary to complete the unit requirements 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 freshmen are required to complete specified college-level courses with a passing grade. Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exception of foreign and foreign language.

With prior approval of the Office of Admissions, these courses may be taken at an accredited college, university, or community college. If the courses are taken at The University of Iowa, if it is usually during the summer term immediately preceding enrollment. Counts taken to remove deficiencies must be completed by the beginning of the student second term of study at The University of Iowa.

Applicants whose high school verifies in writing that a two-year sequence of the same foreign language was not available to them at their high school are offered conditional admission if they meet all other unit, high school class rank, and index requirements. They must complete specified college-level foreign language courses with a passing grade.

In general, one semester of college work in a core curriculum area (3 semester hours or a quarter hour) is required to remove a deficiency of one year or less of high school credit.

**Transfer Students**

Transfer students who have received an A.A. degree from an accredited two-year college, participating in the Iowa Community College Transfer Articulation Agreement are considered to have fulfilled the unit requirements. An A.A. degree from an accredited two-year college participating in the Iowa Community College Transfer Articulation Agreement is considered to have fulfilled the unit requirements.

Other transfer students may use college courses taken elsewhere to make up high school deficiencies. Courses must be completed with a passing grade. Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exception of foreign 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, general science, or social science by earning acceptable scores on approved standardized tests.

**Entering Freshmen**

Applicants seeking admission as entering freshmen must have the high school transcript 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 provisionally after they have completed the senior year in high school, but admission is for final enrollment on the first day of the fall term and certification of high school graduation.

Graduates of approved Iowa high schools who are in the upper one-half of their graduating class generally are admitted after certification of graduation.

Graduates of accredited high schools in other states who are in the upper 30 percent of their graduating class generally are admitted after certification of graduation.

Applicants who do not meet the high school class rank requirements 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 sat SAT instead of ACT scores. The minimum index for admission varies from year to year. For the last decade it has ranged from 90 to 100 and for four years it was as high as 105. A comparable index is used for students who did not pass the SAT at least a minimum of the ACT composite score by two and adding the percentile rank in class. A comparable index is used for students who sat SAT instead of ACT scores. The minimum index for admission varies from year to year. For the last decade it has ranged from 90 to 100 and for four years it was as high as 105.

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 and must take any examinations that demonstrate their general competence to do successful college work, and provide evidence of specific competence for admission to a given curriculum.

**Transfer Students**

Transfer records of credits 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 transfer credit is approved by the College of Liberal Arts and is evaluated for admission.

Applicants must submit an official transcript from each college or university they have attended. Applicants who are not high school graduates, recent high school graduates, and any other records from the College of Liberal Arts may require additional information for admission.

Applicants with a minimum of 24 semester hour of graded credit from regularly
accrued college or universities and who have maintained a grade-point average of 2.25 (on a 4-point system) on all college work previously attempted, are admitted.

Students with fewer than 24 semester hours of college credit are considered for admission based on a combination of high school and college academic records and scores on the ACT or SAT.

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 statement and a statement of the reason for suspension from the previous college are filed. When it becomes proper to consider an applicant from a student under suspension, the college must take into account the previous suspension. Applicants granted admission under these circumstances are admitted on probation, and their admission is subject to cancellation.

Transfer Students from Nonaccorded Colleges

The College of Liberal Arts may refuse to recognize credit from a nonaccredited college or to admit the applicant on a conditional basis and provide a reason for the rejection of some or all of the credit. The validation period is not less than one academic year.

The college specifies to the student the terms of the validation process at the time of conditional admission. Students from nonaccredited colleges are considered on their own merits, and admission or rejection is at the discretion of the admissions officer.

Non-Native Speakers of English

The University of Iowa has an English proficiency requirement to assure non-native speakers know English well enough to study without being hindered by language problems, to understand lectures, and to participate successfully in class discussions. For this reason, applicants whose native language is not English are required to submit scores on the Test of English as a Foreign Language (TOEFL) along with their application for admission and supporting academic documents. Academic advisors from this policy are granted to persons who already have received a bachelor's or equivalent degree from a college in the United States, the United Kingdom, Canada (excluding French Quebec), Africa (English-speaking), Australia, or New Zealand.

Foreign Applicants

REGULAR ADMISSION

A minimum TOEFL score of 570 is required for regular admission and to begin study in a degree program. Baccalaureate level work without restrictions. Applicants whose academic credentials indicate that they should be admitted, but whose TOEFL score falls between 530 and 599, are required to complete an English proficiency evaluation before their file is registered for courses.

Based on the results of the evaluation, these students may:

be allowed to take a full academic course load (excluding English as a Second Language courses);

be required to enroll in a credit-bearing English as a Second Language course;

be required to enroll in an 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, conditioned admission students may enroll in the intensive English Program (IEP) for up to one year. To continue their admission status beyond conditional status, it is a prerequisite for beginning study in a degree program, students must attain a minimum TOEFL score of 530 and complete an English proficiency evaluation.

Based on the results of the evaluation, these students may:

be allowed to take a full academic course load (excluding English as a Second Language courses);

be required to enroll in a credit-bearing English as a Second Language course;

be required to continue in the IEP until their language proficiency reaches an appropriate level.

Students without TOEFL scores or who fall below 530 are not considered for admission to the College of Liberal Arts. These students may enroll in the IEP. However, if students without conditional admission to the College of Liberal Arts does not imply or guarantee admission to an academic program at the University of Iowa.

U.S. Citizens and Permanent Residents

U.S. citizens and permanent residents whose native language is not English are required to submit scores on the TOEFL before registering for courses. Exceptions to this requirement are made in the case of graduates of high schools whose ACT composite score of 20 or above (SAT combined score of 940 or above) and whose ACT English subscore is 21 or above. SAT: 490; and

international students whose ACT composite score is 25 or above (SAT combined score of 1020 or above) and whose ACT English subscore is 21 or above (SAT 490).

Admitted applicants whose TOEFL scores are 600 or above may begin academic courses with restrictions. Those whose TOEFL scores fall below 600 are required to complete additional English language proficiency testing before they register for courses. Applicants seeking exceptions are directed to the coordinator of English as a Second Language.

English Proficiency Evaluations

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

Special (Nondegree) Students

Students may be admitted to the college as nondegree candidates. These students are classified as special students (SP) and may enroll in courses for personal enrichment, to prepare for admission to professional or graduate college, or to complete a specified technological certificate program. Students enrolled in courses as special students are subject to the rules of the college for academic probation and academic dismissals. Courses taken by special students may not be used to satisfy the residence requirement for a baccalaureate degree from the College of Liberal Arts.

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 and who, in addition to an application for re-entry, they should report directly to the Registrar's Center to begin the registration process.

Students who have been excluded in another college or university after being at 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 University for unsatisfactory scholarship have been dismissed from the college for unsatisfactory scholarship (see "Academic Standards" in this section of the catalog).

Credit for Military Service

The admissions officer is authorized to evaluate transcripts from the military service according to recommendations contained in the American Council on Education's Guide to the
Aerospace Military Studies (Air Force Rotc) – Liberal Arts

Evaluation of Experiences in the Armed Forces, with the understanding that class credits may be awarded for college-level work done in the Armed Forces. Students who have taken such work may be accepted for credit under appropriate circumstances.

Credit by Examination

A maximum of 33 semester hours of credit by examination from any accepted source may be accepted toward the 124 semester hours required for graduation. Credit by examination may be awarded on the basis of credit by examination or by the College of Liberal Arts faculty. A student must have earned 12 semester hours of graded, classroom credit in The University of Iowa below credit by examination is granted and placed on the permanent record. Hours of 1, 2, N, O, R, and W do not count toward the 12 semester hours earned.

Placement and Examination

Examinations for General Education

Partial or full exemption from the requirements in history, mathematics, physical education, or foreign language may be awarded for satisfactory performance on tests administered at The University. In addition, examination and academic credit may be awarded in most advanced placement programs and the College-Level Examination Program (CLEP). See below.

Credit by Examination in the Major or Minor

Departments may administer examinations covering required courses or areas of instruction in the major field and may grant credit with a grade of P for the successful completion of such examinations. The maximum credit by examination that may be awarded in the major field is 16 semester hours. Credit toward graduation is approved by the language major only for passing examinations covering the third and fourth semester level or above. Credit by examination may be applied to the 12 semester hours of advanced courses required for the minor.

Advanced Placement Program

Students who pursue college-level learning while still in high school may apply to The University of Iowa for advanced placement examination credits in the various disciplines of study. A student who receives credit for an advanced placement examination will be allowed to receive for credit the undergraduate course which the advanced placement examination has demonstrated he has completed. Students who have taken AP, IB, or A-Level examinations may be given credit by the College of Liberal Arts for courses at The University of Iowa. Credit by examination may be awarded only when a student has been admitted to The University of Iowa and has taken the examination which he will be given credit for. The student must have earned a grade of 3.5 or better on the examination to be eligible for credit by examination.

Credit Transfer

Students who transfer to The University of Iowa with advanced placement credits or credits from a foreign institution may be eligible for credit by examination. Credit by examination may be applied to the 12 semester hours of advanced courses required for the minor.

Validation of Credit

Students with educational experience obtained at a nonaccredited institution or in a foreign institution may be given credit for courses they have completed. The Office of Academic Programs and the department concerned should be consulted for approval to take the appropriate examinations.

Nondepartmental Courses

000:20 Conditioning for Competition 3 sh.
000:21 Intramural Athletic Participation 1 sh.
000:23 Intramural Athletic Participation 1 sh.
000:186 Athletic and Culture 3 sh.
000:101 Introduction to Education, Gen. Social Studies 3 sh.

Students, excused-official programs or insignia, gay, lgbt, women, student, adrian, university of iowa, urbana-champaign, 12345, membership, faculty, 1 sh.

Aerospace Military Studies (Air Force Rotc)

Head: Lt. Col. Spencer Cassens
Professor: Lt. Col. Spencer Cassens
Academic: Professors: Capt. David Bruns, Capt. Christopher D. Kimball

The Department of Aerospace Military Studies administers the Air Force Reserve Officer Training Corps (AFROTC) at The University of Iowa. AFROTC educates highly qualified students who are enrolled toward a bachelor's degree and commissions them as officers in the United States Air Force.

AFROTC is entirely voluntary, with courses open to all undergraduate and graduate students. The amount of AFROTC academic credit that may be applied toward a degree varies from college to college at any University. The College of Liberal Arts, for example, accepts a maximum of 20 semester hours. In order to receive a commission, AFROTC cadets must complete all University requirements for a degree as well as courses specified by the U.S. Air Force.

Prior to commissioning, all AFROTC cadets must complete a course in mathematical reasoning. Credit can be earned in AFROTC, mathematics, and at least two years of a major Indo-English or Asian language. The College of Liberal Arts General Education Requirements minimally satisfy these requirements. AFROTC offers two-, three-, and four-year programs, starting the program early gives students the opportunity to apply for AFROTC without obligations. It also gives them an advantage in the selection process for scholarships and AFROTC/POC membership.

There are three AFROTC program components: the professional officer course (POC), field training, and the general military course (GMC).

Professional Officer Course

The professional officer course (POC) consists of four semesters of AFROTC study. Students accepted into the POC make a commitment to serve a minimum of four years in the U.S. Air Force. 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 of college.

Leadership Laboratory

Leadership Laboratory is designed to create interest and encourage commissioned officer training among cadets. It provides leadership training that improves a cadet's ability to provide the correct leadership at the right time. This leadership training is a continuation of the leadership taught in an academic class and in a class course titled Leadership Laboratory.
Field Training
All POC applicants must successfully complete 72 weeks of training at a U.S. Air Force base during a summer, usually between the sophomore and junior years. There are two types of field training: a four-week course for cadets who have applied for the four-year and three-year programs and a six-week course for two-year program applicants. Field training consists of physical fitness, small group, career, and survival education; junior officer training; pre-professional training; small arms training; human relations education; and practical experience opportunities. The six-week field training provides cadets 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.

General Military Course
The general military course (GMC) consists of a 15-week basic course and a 23A-0 course titled Leadership Lab (LL) during each semester of the development and sophomore years. Any student who meets AROTC qualifications and is in good academic standing with the University is eligible to participate in the GMC.

Special Activities
The Cadet Corps sponsors many social events, including informal dances, dinners, and a military ball.

Cadets can join the Air Force ROTC, a national professional honor society dedicated to developing leadership qualities and to serving the community.

The advanced training program is a voluntary program in which selected cadets may go on active duty for two or three weeks during the summer following their junior year. Cadets get hands-on experience with Air Force equipment and can earn pay and allowances.

Selected AROTC cadets may attend semester training and upon completion wear the army parachute jump wings.

Financial Aid
Scholarships are available, based on merit, for one, two, and three years of study. They provide full tuition, a stipend for books, laboratory fees, and $100 per month, tax-free. Applicants are selected on both objective and subjective factors. Students should apply directly to the professor of aerospace military studies.

All cadets in the last two years of AROTC receive $100 per month, tax-free. AROTC books and uniforms are furnished.

Education Delay
Cadets may request an education delay to pursue entry to active duty until after completion of an advanced degree or professional training program.

Courses
23A-13  The Air Force Today As 100  1.5
Graduates in U.S. and foreign military careers and graduates, basic and advanced communication techniques, career paths in the air force, officers.
23A-1  AROTC Leadership Laboratory (LL)  AS 100
1.5
A progression of experiences designed to develop leadership skills and blunt personality traits; work simulators and computer, realistic professional developments; and the role and work of a junior officer; leadership skills in a problem solving, objective laboratory setting. Offered to all students. Comp. 33A-10.
23A-12  The Air Force Today As 100  1.5
Graduates in U.S. and foreign military careers and graduates, basic and advanced communication techniques, career paths in the air force, officers.
23A-13  AROTC Leadership Laboratory (LL)  AS 100
1.5
23A-20  The Development of Air Power As 200  1.5
A progression in U.S. and foreign military careers and graduates, basic and advanced communication techniques, career paths in the air force, officers.
23A-21  AROTC Leadership Laboratory (LL)  AS 200
1.5
23A-22  The Development of Air Power As 200  1.5
A progression in U.S. and foreign military careers and graduates, basic and advanced communication techniques, career paths in the air force, officers.
23A-23  AROTC Leadership Laboratory (LL)  AS 200
1.5
23A-24  Management and Leadership As 300  3.0
Course of instruction required.
23A-25  AROTC Leadership Laboratory (LL)  AS 300
1.5
23A-26  AROTC Leadership Laboratory (LL)  AS 300
1.5
23A-140 National Security Issues in Contemporary America As 400  3.0
Course of instruction required.
23A-160  AROTC Leadership Laboratory (LL)  AS 400
1.5
See 23A-140. Offered fall semester. Comp. 23A-140.
23A-162 National Security Issues in Contemporary America As 400  3.0
Course of instruction required.
23A-164  AROTC Leadership Laboratory (LL)  AS 400
1.5
See 23A-140. Offered spring semester. Comp. 23A-140.
23A-190 National Security Issues in Contemporary America As 400  3.0
Course of instruction required.
23A-192  AROTC Leadership Laboratory (LL)  AS 400
1.5
See 23A-140. Offered fall semester. Comp. 23A-140.
23A-194  AROTC Leadership Laboratory (LL)  AS 400
1.5
See 23A-140. Offered spring semester. Comp. 23A-140.
23A-196  AROTC Leadership Laboratory (LL)  AS 400
1.5
See 23A-140. Offered fall semester. Comp. 23A-140.
23A-198  AROTC Leadership Laboratory (LL)  AS 400
1.5
See 23A-140. Offered spring semester. Comp. 23A-140.
23A-211 Readings in Contemporary Military Issues  3.0
Independent study. May be repeated. Consent of department chair required.
23A-153  AROTC Leadership Laboratory (LL)  AS 500
1.5
See 23A-140. Offered fall semester.
23A-155  AROTC Leadership Laboratory (LL)  AS 500
1.5
See 23A-140. Offered spring semester.

AFRICAN-AMERICAN WORLD STUDIES
Chair: Fredric Woodward
Professor: Percius Niciotes (English/African-American World Studies)
Associate professors: Alfonso Raffaelli (Anthropology/African-American World Studies), Fredric Woodward (English/African-American World Studies)

Assistant professor: James Gollin (History/African-American World Studies), works with

Undergraduate degree: B.A. in African-American World Studies
Graduate degree: M.A. in Afro-American Studies, M.A. in Afro-American and Puerto Rican Studies

The African-American World Studies Program offers a major in African-American and Puerto Rican Studies. The program is interdisciplinary. It draws cooperating faculty from anthropology, anthropology, art, education, English, French, geography, history, political science, Spanish and Puerto Rican, sociology, and women's studies.

The African-American World Studies Program focuses on the study of people of African ancestry in the African-American community and the societies of the sixteenth through the nineteenth centuries. To provide a comprehensive view of the subject, the program also offers courses examining the African heritage and present relationships of African-Americans to other societies. Through a thorough understanding of African-American culture, the program prepares students for work in a variety of fields, including the humanities and social sciences. The African-American World Studies Program is continuously expanding its perspectives by developing or creating 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 the role of African-Americans in the development of the United States, with an emphasis on understanding the present conditions and history.

Since its inception, the program has been the subject of many courses that include a curriculum that includes a focus on the role of African-Americans in American culture. The program also includes courses in African-American studies, and a focus on the role of African-Americans in American history. A Masters of Arts in Afro-American studies, and concentrations of Afro-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 American history can choose courses in African-American literature or American literary history into a specialized field or cognate area.

Although most of the students in the Ph.D. programs are preparing to work in colleges and universities or as teachers and administrators, the B.A. and M.A. programs provide valuable backgrounds for many other students seeking careers in community work, public school teaching, religion, government, or international science. In short, the African-American World Studies undergraduate program prepares students for any individual whose career will require understanding and knowledge of diversity.

Undergraduate Program
Bachelor of Arts
Students earning a Bachelor of Arts with a major in African-American studies will receive a Bachelor of Arts degree. The program is currently approved for the Bachelor of Arts degree. The program is currently approved for the Bachelor of Arts degree. Students may choose to pursue a Bachelor of Arts degree. The program is currently approved for the Bachelor of Arts degree. The program is currently approved for the Bachelor of Arts degree.

Undergraduate Program
Bachelor of Arts
Students earning a Bachelor of Arts with a major in African-American studies will receive a Bachelor of Arts degree. The program is currently approved for the Bachelor of Arts degree. Students may choose to pursue a Bachelor of Arts degree. The program is currently approved for the Bachelor of Arts degree.
The African-American studies option focuses on Blacks in their 124-year-long saga, on the contributions of their culture and history to civilization in general, and on the African-American press and cultures in various places in the world. The African-American world studies option places greater emphasis on the interactions of black race and cultures in various places in the world. The African-American studies option requires on Axands. Students must earn a grade point average of 2.0 or higher as an average in this major program.

**African-American Studies Option**

**REQUIRED COURSES**
- 120-060 Introduction to African-American Studies 3 s.h.
- 120-061 Introduction to African-American Culture 3 s.h.
- For majors in the program, 120-060-61 are prerequisite to 120-064, 120-065, 120-067, and 120-068.

**ELECTIVES**
- Students must take 6 semester hours of electives in 1200-600, not including 120-060, 120-061, or 120-067.
- Students are encouraged to take at least 12 semester hours of these electives in courses focused on Blacks in Africa or the Caribbean.

**AFRICAN-AMERICAN WORLD STUDIES OPTION**

**REQUIRED COURSES**
- 128-068 Literatures of the African People 3 s.h.
- 120-060 Introduction to African-American Studies 3 s.h.
- 120-061 Introduction to African-American Culture 3 s.h.
- 127-71 Social Science Perspectives on Contemporary Africa 3 s.h.

**ELECTIVES**
- Students must take 6 semester hours of electives in 1200-600, not including 120-060, 120-061, or 120-067.
- Students are encouraged to take at least 12 semester hours of these electives in courses focused on Blacks in Africa or the Caribbean.

**LANGUAGE REQUIREMENT**
- The language requirement for the African-American studies option is four semester hours, or one of the languages, either French, Portuguese, Spanish, or Swahili.

**African Studies Option**

This option is admitted on the basis of the chair of the African-American World Studies Program and the chair of the African Studies Program in consultation with the facilities of their respective programs. Students in this option are advised by the chair of the African-American World Studies Program in consultation with the chair of the African Studies Program. The program consists of 33 semester hours of course work in addition to four semester hours, or the equivalent, of instruction in an African language.

**African-American World Studies Program**

**REQUIRED COURSES**
- 141-07 Introduction to African Studies 3 s.h.
- 120-061 History of Pre-Colonial Africa 3 s.h.
- 120-064 History of Colonial Africa 3 s.h.
- 120-060 Critical Skills Seminar 3 s.h.
- 120-060 Advanced Undergraduate Seminar in African Studies 3 s.h.

**LANGUAGE REQUIREMENTS**
- Currently Swahili is the only African language offered at The University of Iowa.

**Humanities Electives**

Two courses (3 semester hours) focused on Africa, chosen from the following, history, or literature courses:
- 141-055 Introduction to African Art 3 s.h.
- 141-017 Art of West Africa 3 s.h.
- 141-019 Art of Central Africa 3 s.h.

**Social Science Electives**

Two courses (3 semester hours) focused on Africa, chosen from the following:
- 141-073 Social Science Perspectives on Contemporary Africa 3 s.h.
- 141-047 African Development 3 s.h.
- 141-147 The Politics of Southern Africa 3 s.h.
- 141-157 Peoples and Cultures of Africa 3 s.h.
- 141-158 Myth, Magic, and Ritual 3 s.h.
- 141-190 Anthropology of African Art 3 s.h.

**African American Content Elective**

One course (3 semester hours) focused on a significant African content, chosen from the following:
- 112-2 Art of Oceania, and a Pre-Colombian America 3 s.h.
- 30-150 The Political Economy and the World 3 s.h.
- 30-205 World History and Policy in Developing Countries 3 s.h.
- 427-213 Women and Social Change: International Development Perspectives (same as 131-127) 3 s.h.
- 442-205 Cities of the World 3 s.h.
- 131-126 Urban Geography: Health Services 3 s.h.
- 141-160 World Development: Support (same as 141-157) 3 s.h.
- 141-161 Planning and Geography of Underdevelopment (same as 131-126) 3 s.h.
- 442-202 Political Economy of Regional Development 3 s.h.
- 442-204 Agrarian Change and Rural Development of the Third World 3 s.h.

**Diaspora Elective**

One course (3 semester hours) focused on the diaspora in the Diaspora, chosen from courses offered by the African-American World Studies Program or one (3 semester hours) in the Diaspora.

**Honor Program**

The African-American studies honors program offers students the opportunity to pursue special interests in individual, depth research. Students candidates in African-American studies must be members of the University's Honors Program.
Under the guidance of the undergraduate advisor, the honoree candidate defines a research project using primary sources. Project proposals are reviewed by the end of the student's junior year. Each candidate completes a research project under the guidance of a supervising faculty member and may register for up to 6 semester hours at 129-05. Honors Project. Results are presented in a seminar essay to a committee of three faculty members, including the supervising faculty member, the honors advisor, and a third faculty member of the student's choice. When the honors advisor is the supervising faculty member, the candidate may select second and third faculty members. The candidate's résumé may be on the list of the defense of the final project, usually in the second week of the student's last semester.

Minor

The African-American World Studies Program offers an undergraduate minor in African-American studies. Requirements consist of the general requirements for minors in the College of Liberal Arts. In consultation with their advisor, students select 15 semester hours (five courses) designated African-American world studies courses. Four of these courses (12 semester hours) must be numbered 100 or above and must be taken at The University of Iowa. Students must earn a grade-point average of at least 2.0 in all courses in the minor program. Courses numbered 100 and above may be selected from 129-06 and may be at the end of this section of the Catalog. Three 120-175 and 120-176 may be counted toward the minor.

Students who wish to pursue a minor in African-American studies should consult with an advisor in the African-American World Studies Program as early as possible. It is recommended that they select an introductory course from the following: 120-58, 120-11, 120-60, 120-61. Advisors also recommend that they choose 120-115 or 120-155, or 120-156 as two of their upper-level courses.

Graduate Programs

Master of Arts

The interdisciplinary curriculum leading to the Master of Arts in African-American studies provides an interdisciplinary, organized, graduate-level examination of the ethnic culture and experience. Such a program especially benefits individuals pursuing careers in community and religious teaching, work with community-service organizations, or other positions in which an understanding of African-Americans may be necessary or helpful.

Curriculum Requirements

The Master of Arts program in African-American studies requires 39 postbaccalaureate semester hours. Requirements include 129-211 Introduction to the African-American Culture (3 semester hours), 129-312 Advanced Research in African-American Culture (StuHrs-credits), 4 semester hours, and 12 semester hours of required courses in African-American studies.

Most students will be required to earn 12 semester hours in literature/film by taking 129-115 and 129-117 African-American Literature 1 and 2 and 129-155 and 129-166.

African-American History I and II. Students who have earned undergraduate or graduate credit for a 1-semester course in either Afro-American literature or Afro-American history may satisfy the literature/history requirement by studying advanced African-American studies courses approved by their advisor.

The curriculum, students select 15 semester hours of electives in conjunction with their advisor. Recommended are courses in African-American music, African-American art, or African art. All 15 semester hours of electives may be selected from the courses numbered above 100 in the course list below. Students should consult an advisor in the program to determine which courses numbered above 100 will be approved for the M.A.

Because the African-American world studies advisory committee wants to encourage doctoral study for those who have the ability, interest, and resources, it recommends that 6 of the 15 semester hours of electives in the Master of Arts program be used to promote doctoral education in disciplines outside African-American world studies. Possible fields of study are African-American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least one 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 studies, but students considering doctoral study in another field are encouraged to complete one language/tool requirement for that field while studying in the master's degree.

Comprehensive Examinations

Each student is required to pass a written comprehensive examination in African-American studies. The comprehensive examination is prepared and evaluated by a committee of faculty members who teach courses in the African-American World Studies Program. A component of the comprehensive examination is based on a reading list prepared by the student and approved by the African-American World Studies Program. An oral examination may be required as a follow-up to the written exam.

Thesis/Project Requirements

A thesis is not required but is an option for a Master of Arts in African-American studies. If a student elects to write a thesis, the thesis must explore a topic of African-American culture and/or experience and must use research from more than one discipline. The maximum credit for a thesis is 4 semester hours.

Students who do not prepare a thesis are required to develop, in consultation with an advisor, a project related to African-American culture and/or experience. When completed, this project must be presented and defended before an appropriate committee in African-American studies.

Admission

In addition to the general requirements of the Graduate College, general graduate plan and appropriate admission to the African-American Studies Program require that students have an appropriate educational background in literature and the social sciences, at least six semester hours of college credit in African-American literature and/or history courses, and a minimum grade-point average of 3.37 in previous college courses in African-American studies. Students may be asked to take, without credit toward the master's degree, courses needed to remedy deficiencies in undergraduate preparation.

Applicants for admission are expected to provide three letters of recommendation from former professors and a sample of written scholarly work.

Recommendations for admission are made by the admissions subcommittee of the African-American World Studies Program.

Concentration in American Studies Ph.D.

Generally, a student seeking a Ph.D. in African-American studies will concentrate in African-American world studies. Students may take a maximum of 6 semester hours of graduate study in African-American world studies, identify two African-American studies fields within their plan of study, and write a dissertation on a topic in African-American culture. African-American studies field is defined as one in which the major portion of the course work is drawn from those listed under "Courses" at the end of this section of the Catalog. Students interested in such a concentration should consult both the chair of the African-American World Studies Program and the chair of the American Studies Program for more information.

Cognate Areas, Special Fields

It is possible for students to take concentrations of African-American studies courses as cognate areas or special fields in Ph.D. programs in history, English, and other disciplines. For further details, consult an advisor 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...
program also initiates exchange programs with the University of Buea (Cameroon), the University of Nairobi (Kenya), and the Lomonosov Moscow (Russia). For more information on the African Studies Program, contact the Center for International and Comparative Studies.

Undergraduate Programs

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

African Studies Option in the B.A. in African-American World Studies

The African Studies option in the Bachelor of Arts Program in African-American World Studies is open to all students majoring in the disciplines associated with the African-American World Studies Program. For further information, contact the chair of the African-American World Studies Program at 309-124-8200.

Certificate Program

The certificate program in African Studies complements a departmental major and helps prepare students for graduate study or careers related to Africa. The curriculum for the undergraduate certificate consists of 21 semester hours of courses on Africa, divided into three levels of study: introductory, intermediate, and advanced. There are also foreign language requirements.

Required Courses

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### AGING STUDIES PROGRAM

**Coordinator:** Veronica McManus

**Advisory committee chair:** Lorraine Drayton (Social Work)

**Advisory committee:** Patrice Adams (Legal Arts), Joann Caine (Law), Lorenz Emanuel (Social Work), Gary Gold (Business Administration), Jeff Hardman (Chemistry), Charles Heskett (Health), Howard Mims (Clinical Psychology), David Landa (Social Work)

**Requirements:**
- 15 hours in social, behavioral, and life sciences
- 3 hours in science

**Courses:**
- 442:03 Human Development
- 442:04 Aging and Society
- 442:05 Geriatric Nursing
- 442:06 Aging in the Workplace
- 442:07 Aging in the Family
- 442:08 Aging and Public Policy

**Program Certificate**

The certificate in aging studies requires 18 approved semester hours of course work related to aging at the 300 level or above. This course work must include 3 hours in humanities, social science, and 15 hours in courses specifically designed for the study of aging.

**Courses for Certificate:**
- 442:03 Human Development
- 442:04 Aging and Society
- 442:05 Geriatric Nursing
- 442:06 Aging in the Workplace
- 442:07 Aging in the Family
- 442:08 Aging and Public Policy

**Courses for Individualized Major**

Students in the College of Liberal Arts who wish to design an individualized program in aging studies leading to a Bachelor of Arts degree must apply and be accepted to the Interdisciplinary Studies Program. They will present a plan of study that includes 30 semester hours of approved work. Students must submit a plan for program completion that includes a major department and a minor department. All courses must be approved by the counselor in the program coordination.

**Course Requirements**

For full descriptions of each of the courses listed below, see the listing in the appropriate departmental section of this catalog.
INTRODUCTORY COURSES
All students must take at least one and no more than two introductory courses. The introductory courses accepted for the program include:
- 42:108 Basic Aspects of Aging
- 42:130 Aging and Society
- 42:184 Multidisciplinary Perspectives on Aging
- 96:120 Introduction to Gerontology

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:
- 42:150 Field Work in Gerontology (1-3 s.h.)
- 96:133 Practicum in Chinese Medicine (1-3 s.h.)
- 96:143 Leadership, Management, and Research in Nursing Practice (1-3 s.h.)

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

ELECTIVE COURSES
Students may take elective courses to meet their particular needs and interests. Additional courses that fulfill the requirements for the program may be selected from the following:

Anthropology
- 113:116 Aging: A Cross-Cultural Perspective
- 113:117 Women, Men, and Aging (1-3 s.h.)
- 113:147 Special Topics in Anthropology: Health, Development, and Eldercare in Late Life (1-3 s.h.)

Ecological Sciences
- 2:271 Seminar in Cell Physiology: Biology of Aging (1-3 s.h.)

Counselor Education
- 76:270 Topical Seminar in Counselor Education (1-3 s.h.)

Dentistry
- 112:145 Introduction to Geriatric Dentistry (2 s.h.)

Health and Hospital Administration
- 86:308 Long-Term Care Administration (3-4 s.h.)

Internal Medicine
- 76:805 Geriatrics Seminars (3-5 s.h.)

Leisure Studies
- 104:120 Exercise Programs for Special Populations (1-3 s.h.)
- 104:140 Contemporary Issues in Recreation and Leisure (1-3 s.h.)
- 104:152 Aging and Leisure (1-3 s.h.)
- 104:165 Health Promotion and Wellness for Older Adults (2-3 s.h.)

Nursing
- 96:305 Human Development and Behavior (3 s.h.)
- 96:115 Units and Days in Clinical Nursing Practice (3 s.h.)

Pharmacology
- 06:130 Normative and Psychopathological Aspects of Aging (3 s.h.)
- 06:230 Gerontological Nursing I (4 s.h.)
- 06:231 Gerontological Nursing II (4 s.h.)

Physical Education and Sports Studies
- 28:116 Health Promotion and Aging (3 s.h.)

Religion
- 32:153 Introduction to Biological Ethics (2-3 s.h.)
- 32:193 Service, Faith, and Health (2 s.h.)

Social Work
- 42:185 Social Policy and the Elderly (3 s.h.)
- 42:199 Selected Agencies of Social Work and Social Welfare (3 s.h.)
- 42:223 Social Policy Lab in Health Care (2 s.h.)
- 42:280 Human Behavior: Selected Aspects (3 s.h.)

Sociology
- 34:145 Social Psychology of Aging (3 s.h.)
- 34:230 Sociology of the Family (3 s.h.)
- 34:233 Aging and Human Development (3 s.h.)

Speech Pathology
- 3:165 Communication Disorders and Aging (2 s.h.)
- 3:300 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 course fulfills the requirements for the Aging Studies Program. See program office for details.

AMERICAN STUDIES PROGRAM
Chair: Wayne Frinkle
Professor: Yvonne Frinkle (American Studies/English), Richard F. Horowitz (American Studies), John Barber (English, Theater)
Professor emeritus: A. Carol D. Levy (American Studies/English)
Assistant professor: Susan Webber (American Studies/Communication Studies)
Undergraduate degree: B.A. in American Studies, major in American Studies

American Studies offers a unique opportunity for students to pursue an interdisciplinary approach to understanding American history, culture, economy, and society. The program provides a broad, multidisciplinary perspective on American society and culture, including its social, economic, political, and cultural dimensions. The courses offered cover a wide range of topics, from the pre-Columbian era to the present day, and are designed to provide students with a deep understanding of the complex forces that have shaped American society.

Required Courses
The major usually consists of 12 courses totaling 36 semester hours. Students are expected to complete courses in women's studies and Africana-American studies. Courses in American studies include:
- 45:1 American Values and 45:99 Seminar in American Studies, Requirements are as follows:

American Studies Core 14 courses, including 45:1 and 45:99) 12 s.h.
American History (2 courses) 6 s.h.
Area of concentration (6 courses in American studies or other department) 16 s.h.

General education courses in historical, philosophical, humanities, literature, and social sciences provide relevant preparation for the American studies major. No. 9 American Love is especially recommended.

Honors

The American studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates in American studies must be members of the University Honors Program.

Under the guidance of the undergraduate honors advisor, the honors candidate defines a research project using primary sources. Project proposals should be made by the end of the sophomore year. Each candidate will write the project under the guidance of a supervising faculty member and must register for up to 4 semester hours in 45-499 Honors Project.

Results of the research project are presented in a senior essay to a committee of three faculty members, including the supervising faculty member, the honors advisor, and a third faculty member of the student's choice. Within the honors advisor in the supervising faculty member, the candidate may select second and third faculty members. The candidate's committee may choose to locate in the on-site or off-site of the candidate, usually in the third week of the student's last semester.

Minor

Students interested in a minor in American studies should consult program faculty members. The minor requires a minimum of 15 semester hours of credit in American studies with a minimum grade-point average of 2.00. At least 12 of the 15 semester hours must be taken at The University of Iowa in courses numbered 45-100 and above, but 45-90 may count toward this requirement.

Graduate Programs

Master of Arts

The M.A. in American studies may be a terminal degree or a degree prerequisite to the Ph.D. in African-American studies or a traditional discipline.

The M.A. program in American studies includes 12 courses usually totaling 36 semester hours. Requirements include:

- 45-200 (3) Theory and Practice in African-American Studies
- 1-2 courses out of 10 semester hours may be chosen from one other American studies or related area in social sciences, free to eight additional courses selected in relation to the topic of social or cultural history; these courses may be grouped to address more than one topic, and they must be chosen from more than one department; these courses usually include at least two courses in American history and some work in African-American world studies and women's studies, providing basic training for the M.A. in African-American studies or related areas.

- Satisfactory performance in 45-400 Masters Preparation (3 s.h.), which includes a comprehensive examination on coursework and basic concepts.

The M.A. may also be taken with thesis, in which case a student may receive up to 3 semester hours of their credit. Students should consult 45-349 program catalog for details.

A joint program leading to the M.A. in American studies and the J.D. from the College of Law provides a heart for legal studies for the study and practice of law. Similar joint programs can be arranged with 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 coursework that provides a core of American studies courses in interdisciplinary methods and professional coursework in three major fields. Course requirements are as follows:

- 45-200 (3) Theory and Practice in American Studies 3 s.h.
- First field (6 courses) 18 s.h.
- Second field (5 courses) 18 s.h.
- Third field (4 courses) 12 s.h.
- Electives

Although permitted considerable flexibility in planning a program, American studies Ph.D. candidates must meet certain basic requirements. One is that through coursework and reading, all students address the cultural diversity of American life. Since race and gender roles are specifically analyzed in the core portfolio, the comprehensive examination, and dissertation work in American-African world studies and women's studies.

Students also design a plan of study that emphasizes a particular period of cultural history. A review is assembled on the other background or in the field of all doctoral programs.

Finally, students must complete significant coursework in American studies (see American studies catalog). Graduate students normally must take 45-200 (3) Theory and Practice in American Studies and 30-810 (3) Introduction to African-American Studies. Students must work carefully with advisors to be sure each major field is to the best possible in a coherent plan of study.

Admission to Ph.D. Candidacy

A student's plan of study and evaluation by instructors must be presented to the American studies faculty for review after about 30 semester hours of coursework have been completed. Students who have been accepted to Ph.D. candidacy should finish two courses approved for the degree program and prepare for comprehensive examinations.

Comprehensive Examinations

Tech must include at least 5 courses (18 semester hours), including literature. In lieu of a field, students should consider a foreign language, area studies, self-examination, interpretive, theoretical, comparative studies, or a thesis and course in women's studies and African-American world studies, but also a foreign language, media production skills, etc. (e.g., photography, film, and interaction). Comprehensive examination of two of the fields and one of the subfields, with the consent of the candidate, 30 hours or more of the course of a single semester. The third field is tested through an oral examination. The oral portion of the exam is structured around the position paper, the written examination or essay, and the extended bibliography.

Thesis

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis. A topic whose investigation involves more than one field or discipline. The candidate may select such a topic from the studies offered. Permission to undertake such a thesis is granted only by the American Studies Steering Committee.

Interimships

Graduate students in American studies can arrange internships with a number of local agencies, including the Black Separate Historical Society in Iowa, the Hyatt Foundation, the University of Iowa Museum of Art, the Iowa Humanities Board, the Living History Farms, the Herbert Hoover National Historical Site, and the Pulteney Museum. Internships in Chicago can be negotiated with Hull House, Newberry Library, Church of Chicago, and the National Museum of Afro-American History and Culture. Often, the on-the-job training may receive academic credit through 45-100 Independent Study or 45-350 Independent Study.

Other internships are available in social agencies, government, or business fields, including:

Primary for Undergraduates

American Literature

45-000 Comparative Literary Survey 3 s.h.

45-050 American Literature 3 s.h.

45-200 American Authors 3 s.h.

45-250 American Short Stories 3 s.h.

45-300 American Novels 3 s.h.

45-350 American Literature 3 s.h.

American History

45-100 American History 3 s.h.

45-200 American History 3 s.h.

45-300 American History 3 s.h.

45-350 American History 3 s.h.

45-400 American History 3 s.h.
45:48 Gender in the U.S. 3 h.
Social and cultural norms and values of gender relations, race and ethnicity, and the sociopolitical dynamics of American culture. Same as 35:29. 45:49 Women and Work in the U.S. 3 h.
Historical and contemporary social, economic, and political processes of women's lives. Same as 35:29. 45:50 Poverty in the U.S. 3 h.
The causes, consequences, and government policies of poverty in the United States. Same as 35:29.
45:51 Media in the U.S. 3 h.
History, development, and cultural implications of mass communication in the United States. Same as 35:29.
45:52 American Arts 3 h.
The development of American arts and culture. Same as 35:29.
45:53 American Physicians 3 h.
Medicine in America, past and present. Same as 35:29.
45:54 Theology in American Culture 3 h.
The history, development, and cultural implications of American theology. Same as 35:29.
45:55 Sociology in American Culture 3 h.
Sociology in the United States, past and present. Same as 35:29.
45:56 Philosophy in American Culture 3 h.
The history, development, and cultural implications of American philosophy. Same as 35:29.
45:57 Music in American Culture 3 h.
The history, development, and cultural implications of American music. Same as 35:29.
45:58 American Architecture 3 h.
The history, development, and cultural implications of American architecture. Same as 35:29.
45:59 Women in American Culture 3 h.
The history, development, and cultural implications of women in American culture. Same as 35:29.
45:60 Theories of American Culture 3 h.
Theoretical foundations of American cultural studies. Same as 35:29.
45:61 American Divides 3 h.
Social and cultural divides in American society. Same as 35:29.
45:62 American Values 3 h.
The history, development, and cultural implications of American values. Same as 35:29.
45:63 American History 3 h.
The history, development, and cultural implications of American history. Same as 35:29.
45:64 American Culture and American Society 3 h.
The history, development, and cultural implications of American culture and society. Same as 35:29.
45:65 American Politics 3 h.
The history, development, and cultural implications of American politics. Same as 35:29.
45:66 American Economics 3 h.
The history, development, and cultural implications of American economics. Same as 35:29.
45:67 American Law 3 h.
The history, development, and cultural implications of American law. Same as 35:29.
45:68 American Literature 3 h.
The history, development, and cultural implications of American literature. Same as 35:29.
45:69 American Religion 3 h.
The history, development, and cultural implications of American religion. Same as 35:29.
45:70 American Science and Technology 3 h.
The history, development, and cultural implications of American science and technology. Same as 35:29.
45:71 American Business 3 h.
The history, development, and cultural implications of American business. Same as 35:29.
45:72 American Art 3 h.
The history, development, and cultural implications of American art. Same as 35:29.
45:73 American Music 3 h.
The history, development, and cultural implications of American music. Same as 35:29.
45:74 American Film 3 h.
The history, development, and cultural implications of American film. Same as 35:29.
45:75 American Theatre 3 h.
The history, development, and cultural implications of American theatre. Same as 35:29.
45:76 American Dance 3 h.
The history, development, and cultural implications of American dance. Same as 35:29.
45:77 American Sports 3 h.
The history, development, and cultural implications of American sports. Same as 35:29.
45:78 American Food 3 h.
The history, development, and cultural implications of American food. Same as 35:29.
45:79 American Language 3 h.
The history, development, and cultural implications of American language. Same as 35:29.
45:80 American Sports 3 h.
The history, development, and cultural implications of American sports. Same as 35:29.
and course, medical anthropology, religious activity in life and death settings, gender, biological anthropology, expressive culture (art, literature, music, dance), human evolution, environment and culture, and urban anthropology. Department faculty members offer electives courses on Africa, China, Oceania, Southeast Asia, Latin America, the Caribbean, Japan, and Native North America.

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

Honors

The honors program in anthropology is open to students with a minimum cumulative grade point average of 3.20 (overall grade point average of 3.50 for students majoring in anthropology). In addition to the regular requirements for a major in anthropology, honors students complete an honors seminar or graduate-level course and an honors research project. Consult the department honors advisor for more information.

Minor

To minor in anthropology, students must complete a total of 21 hours in anthropology with a minimum grade-point average of 2.00. At least 12 semester hours must be taken at The University of Iowa in courses numbered 113:100 and above.

Graduate Programs

Master of Arts

The M.A. program consists of four program tracks: general anthropology (thesis or nonthesis), scientific anthropology, museum studies, and the internship. Students are required to deal with any aspect of anthropology at any introductory (i.e., didactic) level, scientific anthropology (thesis only); scientific anthropology (thesis only); and anthropology with a concentration in museum studies.

The M.A. program without thesis includes consideration for admission to the Ph.D. program at Iowa. The number of semester hours of credit required for the M.A. with thesis varies from 30 to 36, depending on the student's previous anthropological training. The nonthesis program requires a minimum of 35 semester hours of graduate work. The department also offers a 30-semester-hour M.A. without thesis in anthropology with a concentration in museum studies. No more than 9 semester hours of courses outside of anthropology and no more than 1 semester hour of independent study may be applied toward the M.A. requirements in anthropology.

Students with previous training in anthropology, whatever their undergraduate major, may petition for permission to waive any part of the distribution requirements listed below. The following are the requirements for each M.A. program track.

General Anthropology

(Thesis or nonthesis)

113:102 Anthropological Data Analysis 3 s.h.
113:171 Ethnographic Anthropology 3 s.h.
113:240 Seminar: Socio-cultural Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
113:245 Seminar: Biological Anthropology 3 s.h.
113:258 Seminar: Archaeological Theory and Method 3 s.h.
Students also must take one additional course in each of two of the following subject areas, for an additional 6 semester hours:

Sociocultural anthropology (courses listed under Social Institutions)

Linguistics (including appropriate courses in the Department of Linguistics)

Archaeology (excluding field and laboratory methods courses)

Biological anthropology (excluding laboratory courses)

Economist Anthropology

(Thesis only)

113:102 Anthropological Data Analysis 3 s.h.
113:240 Seminar: Socio-cultural Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
Students also must take one course from each of the three groups below, for an additional 9 semester hours.

113:135 Work and Society 3 s.h.
113:141 Economic Anthropology 3 s.h.
113:158 Economic and Political Development: Women's Roles 3 s.h.
113:223 Society of the Third World 3 s.h.
113:275 Development Policy and Planning in the Third World 3 s.h.
113:143 Environment and Culture 3 s.h.
113:160 Environmental Anthropology 3 s.h.
113:164 Comparative Palynology 3 s.h.

Feminist Anthropology

(Thesis only)

113:190 Feminist Perspective on Biology and Culture 3 s.h.
113:223 Seminar: Feminist Anthropology 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.
Students also take three courses from the two groups below, with at least one course from each group, for an additional 9 semester hours.

113:158 Economic and Political Development: Women's Roles 3 s.h.
113:150 Women's Roles in Cross-cultural Perspective 3 s.h.
113:223 Seminar: Feminist Anthropology 3 s.h.

113:171 Anthropological Linguistics 3 s.h.
113:190 Language and Culture 3 s.h.
113:201 Seminar: Ethnographic Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
113:265 Seminar: Biological Anthropology 3 s.h.

M.A. in Anthropology with a Concentration in Museum Studies

In cooperation with the Program in Museum Studies, the Department of Anthropology offers a nonthesis program of study leading to an M.A. in anthropology with a concentration in museum studies. Students will be able to pursue a degree of specialization in exhibit design, curatorial, and educational outreach development that forms part of the graduate program.

REQUISITE COURSES

Anthropology

113:160 Seminar: Sociocultural Anthropology 3 s.h.
113:245 Seminar: Biological Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
Becomes in anthropology 6 s.h.

Museum Studies

214:102 Introduction to Museology 3 s.h.
214:104 Principles of Exhibit Design 3 s.h.
214:106 Museum Laboratory Methods 3 s.h.
214:113 Introduction to Conservation of Museum Objects 3 s.h.
214:149 Administration and Organization of Materials 3 s.h.
214:150 Directed Studies and Projects 1-6 s.h.
214:180 Museum Internship 2-12 s.h.

SUGGESTED ELECTIVES

214:107 Museum Laboratory Methods 3 s.h.
214:180 Museum Internship 2-12 s.h.

Other courses in museum studies, science education, curricular design and technology, geography, biological sciences, art and art history, and English (especially writing)

Doctor of Philosophy

Graduate training in anthropology or the Ph.D. level is designed to lead to professional competence in scholarly research and teaching. Students at The University of Iowa currently may select specializations in all four subfields of anthropology: archaeology, biological anthropology, linguistic anthropology, and sociocultural anthropology.

Training in specialization is guided by a Ph.D. committee composed of appropriate faculty members. Students work closely with their committee to plan a program consistent with their individual interests.

70 Liberal Arts • Anthropology
The requirements are:

at least 72 semester hours of graduate course work; students specializing in sociocultural anthropology must take 113:201 Seminar: Anthropology and the demonstration of a reading knowledge of one foreign language;

ethnographic or archaeological specialization in a major geographic area (for example, North America, Mexico, Central America, South America, Ohio, Southeast Asia, the Caribbean, Europe, Africa) approved by the student’s Ph.D. Advisory Committee;

specialization in a minor and minor topical area;

a written comprehensive examination in the student’s area of specialization and preparation for oral defense of dissertation. The major topical area is the area of "anthropological" concentration or orientation for the dissertation. Topics that they serve either as major or minor areas in institutions of biological or linguistic anthropology include kinship and social organization, ethnography, ecology, economics, anthropology, political anthropology, sociocultural anthropology, cultural geography, cultural and social anthropology, language and culture, religion, culture ecology, and medical anthropology. Major optical areas for students in anthropology include: social and cultural anthropology, medical anthropology, and dating methods. Those for students in biological anthropology include: human evolution, primate evolution, primate anatomy, and primate behavior.

The comprehensive examination ordinarily is taken when the student’s course work is complete and the graduate research assistant has been assigned. It may be taken by registered graduate students in any department at the University of Michigan. The examination includes: (1) an oral examination in addition to the comprehensive examination; (2) an oral defense of the dissertation, and (3) an oral discussion of the dissertation. The examination is conducted by a panel of faculty members from the anthropology department. The examination is based on the student’s knowledge of the field and the student’s ability to apply that knowledge to the solution of problems in the field.

The program requires a student to complete a minimum of 90 semester hours of graduate coursework, including at least 30 semester hours of courses numbered 600 or above, and an additional 30 semester hours of courses numbered 500 or above. In addition, the student must pass a comprehensive examination in the major topical area and a written comprehensive examination in the minor topical area. The comprehensive examination is given in the spring of the student’s second year and is administered by a committee of four faculty members, including the student’s dissertation advisor. The written examination is given in the fall of the student’s third year and is administered by a committee of three faculty members, including the student’s dissertation advisor. The written examination consists of two parts: a written examination and an oral examination. The written examination is given in the fall of the student’s third year and is administered by a committee of three faculty members, including the student’s dissertation advisor. The oral examination is given in the spring of the student’s fourth year and is administered by a committee of four faculty members, including the student’s dissertation advisor. The oral examination is given in the spring of the student’s fourth year and is administered by a committee of four faculty members, including the student’s dissertation advisor. The oral examination is given in the spring of the student’s fourth year and is administered by a committee of four faculty members, including the student’s dissertation advisor. The oral examination is given in the spring of the student’s fourth year and is administered by a committee of four faculty members, including the student’s dissertation advisor.
113:12 Introduction to Persian
3. Introduction to Persian cultures and their role in the Islamic Golden Age.
3.3. Political and economic organization of Persian society.
3.4. Persian literature and the development of Persian literature.

113:13 Human Origins
3.3. The development of human cultures in the context of the evolution of humanity.
3.4. The spread of human cultures across the globe.
3.5. The impact of human cultures on the natural environment.

114:14 Language and Ethnic Behavior
3.5. Cultural practices and their influence on the development of languages.
3.6. The role of language in ethnic behavior.
3.7. The impact of ethnic behavior on cultural practices.

115:15 Biblical Study
3.4. The development of biblical studies in the context of human cultures.
3.5. The impact of biblical studies on human cultures.
3.6. The role of biblical studies in the development of human cultures.

117:17 House Research
3.4. The role of research in the development of human cultures.
3.5. The impact of research on human cultures.
3.6. The role of human cultures in the development of research.

Advanced Courses

General Anthropology
110:100 General Anthropology
3. Comparative study of cultures, social organization. Open only to students with admission standing.

110:102 Anthropological Data Analysis
3. Qualitative analysis for existing data. How data, materials, case-studies and models to the examination of general data. Students will be evaluated in a manner appropriate to the level of the course they register for. CGS

113:10 Review of Anthropology
3.3. The role of anthropology in the study of human cultures.
3.4. The impact of anthropology on the development of human cultures.
3.5. The role of human cultures in the development of anthropology.

117:17 Theological Seminary
3.4. The role of theology in the study of human cultures.
3.5. The impact of theology on the development of human cultures.
3.6. The role of human cultures in the development of theology.

117:18 Theology and Cultural Diversity
3.4. The role of theology and cultural diversity in the study of human cultures.
3.5. The impact of theology and cultural diversity on the development of human cultures.
3.6. The role of human cultures in the development of theology and cultural diversity.

117:20 Literature on Anthropology
3.4. The role of literature in the study of human cultures.
3.5. The impact of literature on the development of human cultures.
3.6. The role of human cultures in the development of literature.

117:21 Anthropological Studies of Literature
3.4. The role of anthropology in the study of literature.
3.5. The impact of anthropology on the development of literature.
3.6. The role of literature in the development of anthropology.

117:22 History of Anthropology
3.4. The role of history in the study of anthropology.
3.5. The impact of history on the development of anthropology.
3.6. The role of anthropology in the study of history.

117:23 Spatial Topics in Anthropology
3.4. The role of space in the study of anthropology.
3.5. The impact of space on the development of anthropology.
3.6. The role of anthropology in the study of space.

117:24 The Anthropology of the Door
3.4. The role of the door in the study of anthropology.
3.5. The impact of the door on the development of anthropology.
3.6. The role of anthropology in the study of the door.

117:25 Sociology of the Third World
3.4. The role of sociology in the study of the Third World.
3.5. The impact of sociology on the development of the Third World.
3.6. The role of the Third World in the development of sociology.

117:26 Sociology of the Bible
3.4. The role of sociology in the study of the Bible.
3.5. The impact of sociology on the development of the Bible.
3.6. The role of the Bible in the development of sociology.

117:27 Anthropology of Agriculture
3.4. The role of anthropology in the study of agriculture.
3.5. The impact of anthropology on the development of agriculture.
3.6. The role of agriculture in the development of anthropology.

117:28 Anthropology of the Family
3.4. The role of anthropology in the study of the family.
3.5. The impact of anthropology on the development of the family.
3.6. The role of the family in the development of anthropology.

117:29 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:30 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:31 Anthropology of the Family
3.4. The role of anthropology in the study of the family.
3.5. The impact of anthropology on the development of the family.
3.6. The role of the family in the development of anthropology.

117:32 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:33 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:34 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:35 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:36 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:37 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:38 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:39 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:40 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:41 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:42 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:43 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:44 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:45 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:46 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:47 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:48 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:49 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:50 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:51 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.

117:52 Anthropology of the Church
3.4. The role of anthropology in the study of the church.
3.5. The impact of anthropology on the development of the church.
3.6. The role of the church in the development of anthropology.

117:53 Anthropology of the State
3.4. The role of anthropology in the study of the state.
3.5. The impact of anthropology on the development of the state.
3.6. The role of the state in the development of anthropology.
requirements above, for a total of 4 semester hours. Beginning courses in areas not listed above are as follows:

1D-21 Fundamentals in Design I—Form and Structure 2 s.h.
1D-22 Principles in Design II—Form and Function 2 s.h.
1D-25 Lettering I 2 s.h.
1D-26 Color Design I 2 s.h.
1H-27 Life Drawing I 2 s.h.
1K-28 Painting I 2 s.h.
1L-29 Beginning Photography 2 s.h.
1M/21 Undergraduate Inflation and Relief I 2 s.h.

Electives, selected only from courses that originate in the School of Art and Art History. These must total the number of credits in art history, studio, or art education to a minimum of 36 semester hours. No more than 50 semester hours of credit in the Combined Art History, studio, or art education combined may count toward the 124 semester hours required for the degree.

Transfer students majoring in studio must complete all of The University of Iowa’s minimum of 23 semester hours in art history and 12 semester hours in studio, in addition to the six basic studio courses required above and including at least two different studio areas. These courses must be taken at The University of Iowa.

Undergraduate transfer students majoring in studio must complete all basic studio courses, no matter where they were taken. Undergraduate transfer students majoring in studio must complete the following requirements:

- 18:196 Concepts in Art Education 3 s.h.
- 1E:198 Art Education Studio 3 s.h.
- 75:345 Methods: Art 3 s.h.
- 75:005 Advanced Methodology: Art 3 s.h.
- 75:378 Seminar: Ceramics and Student Teaching 3 s.h.
- 75:101 Special Area Student Teaching 6 s.h.
- 75:101 Observation and Laboratory Practice in the Secondary School 6 s.h.

These students may elect to take 1E:230 Art Education and the Museum, for 3 semester hours.

Bachelor of Arts in Art History

The B.A. in art history requires the following courses and credits, for a total of 42-44 semester hours:

- 1H:5 Western Art and Culture before 1500 3 s.h.
- 1H:5 Western Art and Culture after 1500 3 s.h.
- 1H:10 Asian Art and Culture 3 s.h.
- 1H:13 Islamic Art and Civilization 3 s.h.
- 1H:16 Asian Art and Culture 3 s.h.
- 1H:20 Introduction to African Art 3 s.h.
- 1H:25 Introduction to Ancient Art 3 s.h.
- 1H:47 Introduction to Renaissance Art 3 s.h.
- 1H:55 Introduction to Baroque Art 3 s.h.
- 1H:58 Introduction to Seventeenth-Century Art 3 s.h.
- 1H:53 Introduction to Eighteenth-Century Art 3 s.h.
- 1H:60 Introduction to American Art 3 s.h.
- 1H:101-102 Undergraduate Seminar in the History of Art (typically in junior or senior year) 3 s.h.

These students may elect to take 1E:230 Art Education and the Museum, for 3 semester hours. These students must complete the following requirements:

- 1H:25 Introduction to African Art 3 s.h.
- 1H:26 Introduction to Medieval Art 3 s.h.
- 1H:47 Introduction to Renaissance Art 3 s.h.
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- 1H:60 Introduction to American Art 3 s.h.
- 1H:101-102 Undergraduate Seminar in the History of Art (typically in junior or senior year) 3 s.h.
requirement may be met by a research paper selected from a graduate-level or directed-studies course judged to be comparable in quality to graduate degree work.

Hence students in studio courses must maintain a minimum grade point average of 3.50 in studio courses, hold an exhibition of their studio work, and prepare a statement of the sources of the exhibited studio work. The assessment must be based on the history of art, history of ideas, philosophy, and as forth written under the supervision of faculty in the student's studio concentration area. Registration for the course of individual instruction that leads to the exhibition and related statement may be for 3 semester hours of credit.

Minor
A minor in art requires 15 semester hours in art courses with a minimum grade point average of 2.00. At least 12 of these hours must be in advanced-level art courses taken at The University of Iowa (these numbered 100 and above plus 14:49, 14:52, and 14:77).

Graduate Programs

Master of Arts in Art History
M.A. students in art history are expected to acquire a broad general knowledge of art history as an academic and humanistic discipline, become familiar with a major area and group of instruments of world art, and gain proficiency in research techniques within selected areas.

Specific requirements include:
- A B.A. or B.F.A. degree; at least 18 semester hours of undergraduate work in art history is recommended.
- A minimum of 30 semester hours of graduate-level course work with a grade-point average of 3.00 or higher; students planning to transfer graduate credits from another institution should note that the minimum residence requirement for the M.A. degree is 24 semester hours; and
- A grade of A or B in at least one semester-long course in each of the following areas of art history: the courses must be at a level equivalent to University of Iowa courses numbered 100 or above, and must be taken after receiving the B.A.
- At least 300 hours of coursework.
- At least 150 hours of coursework.

Nineteen credits in modern
- African, African-American, and Afro-Columbian

Master's in fine arts include a comprehensive written examination for the fine art history area courses. Totaling approximately four hours in length, the exam broadly covers the entire field of art history and usually is given three times per year. This exam is the first and the summer session. Students must take this examination at the latest by the end of the second regularly scheduled examination date following the semester in which they complete 20 semester hours of graduate work. The comprehensive examination may be retaken only once.

Course distribution for the M.A. in art history is as follows:
- 18:294 Seminar: Methodology of Art History and Criticism 3 s.h.
- One of the following courses (with different instructors) 6 s.h.
- Additional art history courses 14-21 s.h.
- Studio course 0-6 s.h.
- Courses outside the school 0-9 s.h.

"These seminars can be applied toward the fine art history area courses if the student has earned a grade of B or higher in an undergraduate course in the same area.

Students are required to have a total of 6 semester hours of studio training at either the undergraduate or graduate level. Students with 6 semester hours or more of undergraduate studio training are exempt from the graduate studio requirement. Students preparing to teach in both the art history and studio areas take 12-18 semester hours of studio course work, with a minimum of 6 semester hours in one subject. In addition to the undergraduate requirement for a studio major, These also must satisfy the drawing requirement. Studio courses may be taken satisfactorily/unsatisfactorily.

M.A. candidates with undergraduate majors in art history are encouraged to take courses outside the school.

Within the first 20 semester hours of graduate work, the M.A. candidate must demonstrate the ability to read and understand written in an appropriate language, normally German or French, through other languages (including Oriental languages) may be acceptable. This requirement may be fulfilled by satisfactory completion of the final semester of a Ph.D. language reading course, or satisfactory completion (with a grade of B or higher) of the fourth semester of a college or university language course.

Students must prepare either a written thesis, for which 5 semester hours of credit may be allowed, or a substantial research paper of approximately 40-40 pages.

Specialized Area Studies Programs

The school also offers a specialized area studies program on the M.A. level. Formal approval to enter this program is based on the student's background, interests, and general aptitude for the program. It requires that the student demonstrate substantial potential for outstanding work in the area of his or her specialization.

To encourage in-depth work, students are expected to concentrate course work in their major area of focus. Acceptance into the area studies program does not change students' obligations to the methodology, language, seminar, and research paper/dissertation requirements. Students consult with their faculty advisors to choose appropriate courses in related areas offered by other departments. Faculty supervising work in the specific areas evaluate the students annually.

Master of Arts in Studio

The school offers the M.A. in studio with a major in an area of concentration in the metawriting and (work) multimedia and video art, photography, printmaking, or sculpture. The degree requires:
- A B.A. or B.F.A. in an equivalent area that is offered at The University of Iowa undergraduate degree. Students may be admitted concurrently with, but are in the same graduate program, a minimum of 30 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 6 semester hours of courses outside an art end of history.

clearance for M.A. candidacy by faculty review; and

studio and written theses.

Students in studio and studio areas may complete an art history course on a satisfactory/unsatisfactory basis. Graduate students who have not had drawing at The University of Iowa must take at least one drawing course during the first year. A student preparing to teach in both the studio and art history areas must complete an art history course of at least 15 semester hours, including 18:294 Seminar: Methodology of Art History and Criticism and one other seminar. These hours are in addition to the University's undergraduate requirement for an art history course and the undergraduate hours; must satisfy the distribution requirements for art history.

Master of Arts in Art Education

Requirements for the M.A. in art education are:
- A B.A. or B.F.A. in an equivalent area that is offered at The University of Iowa, teaching certification in art, and completion of 38 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history). At least 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 an art education or art history, or a studio thesis accompanied by a brief statement of the student's theoretical, 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 must take at least one drawing course, selected from the school's regular and advanced drawing courses, during the first year as residence.
Master of Fine Arts in Studio

The school offers the M.F.A. with a major in ceramics, design, drawing, metalworking and jewelry, multimedia and video art, 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; 6 semester hours in art history and theory of art; and 8 semester hours in courses originating outside the school; competence for M.F.A. candidacy by faculty review; and studio and written thesis. These credits earned in an M.M.A. program are not applicable toward the M.F.A. credit requirements.

Doctor of Philosophy in Art History

Ph.D. students must have a broad general knowledge of art history and acquired detailed knowledge of a major field, an understanding of artistic development, and a knowledge of research methods within certain specialized areas of world art selected by each student in consultation with appropriate faculty members.

The Ph.D. in art history is intended only for students who can effectively demonstrate scholarly potential in the field. Students may apply for a rapid track to the Ph.D., bypassing the M.A. (see "Direct Entry into Ph.D. Program"). All students must meet the following requirements for the Ph.D.:

- Submissions of an art history research paper that meets the approval of at least three faculty of the graduate art history faculty;
- A minimum of 72 semester hours of graduate level course work, a maximum of 36 semester hours of which may be transferred from another college or university;
- A satisfactory passing grade on an examination on the art history faculty's graduate course requirements for dissertation preparation. The topic of the dissertation must be presented in the faculty for approval. Students are given a final oral examination on the dissertation.

Direct Entry into Ph.D. Program

A graduate student may, at any time, apply to receive the Ph.D. program directly, without first acquiring an M.A. degree, students who want to receive this program must submit a single research paper that meets the approval of three faculty of the graduate art history faculty. Students may apply for this option only twice; if the second application fails, they must complete the M.A. before again applying for admission into the Ph.D. program. The M.A. distribution requirement is waived, but foreign language and seminar requirements remain the same.

Doctor of Philosophy in Art Education

The Ph.D. in art education gives college teachers and researchers in art education and supervisors in the 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 dissertation must be written with the advisor 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 teach courses (72360 or 72368 Introduction to Research in Art Education). Students must take both oral and written comprehensive examinations. The written portion of the 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 replace directly to the student's dissertation proposal. Students also must complete a written dissertation for at least 12 semester hours and are expected to prepare a dissertation proposal and defend it before the dissertation committee. An oral examination on the dissertation is the Ph.D. final examination.

Admission

Studio Admissions procedures for graduate studio programs include a committee review of applications and all of the applicant's supporting material. Studio applications must include CBE scores with their application. Applicants should consult the School for deadlines and meeting times.

Art History and Art Education Admissions applications for graduate studio programs include a committee review of applications and all of the applicant's supporting material. Studio applications must include CBE scores with their application. Applicants should consult the School for deadlines and meeting times.

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**Art and Art History ● Liberal Arts**

**Art History**

**15th Century Art**

- 15th Century Italian Art
- 15th Century Flemish Art
- 15th Century Spanish Art
- 15th Century French Art
- 15th Century German Art
- 15th Century English Art

**16th Century Art**

- 16th Century Italian Art
- 16th Century Flemish Art
- 16th Century Spanish Art
- 16th Century French Art
- 16th Century German Art
- 16th Century English Art

**17th Century Art**

- 17th Century Italian Art
- 17th Century Flemish Art
- 17th Century Spanish Art
- 17th Century French Art
- 17th Century German Art
- 17th Century English Art

**18th Century Art**

- 18th Century Italian Art
- 18th Century Flemish Art
- 18th Century Spanish Art
- 18th Century French Art
- 18th Century German Art
- 18th Century English Art

**19th Century Art**

- 19th Century Italian Art
- 19th Century Flemish Art
- 19th Century Spanish Art
- 19th Century French Art
- 19th Century German Art
- 19th Century English Art

**20th Century Art**

- 20th Century Italian Art
- 20th Century Flemish Art
- 20th Century Spanish Art
- 20th Century French Art
- 20th Century German Art
- 20th Century English Art

**21st Century Art**

- 21st Century Italian Art
- 21st Century Flemish Art
- 21st Century Spanish Art
- 21st Century French Art
- 21st Century German Art
- 21st Century English Art

**Modern and Contemporary Art**

- Modern and Contemporary Art
- Modern and Contemporary Art
- Modern and Contemporary Art
- Modern and Contemporary Art
- Modern and Contemporary Art
- Modern and Contemporary Art

**Art Movements**

- Art Movements
- Art Movements
- Art Movements
- Art Movements
- Art Movements
- Art Movements

**Artistic Movements**

- Artistic Movements
- Artistic Movements
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- Artistic Movements

**Ceramics**

- Ceramics
- Ceramics
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- Ceramics

**Design**

- Design
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- Design
- Design

**Elements**

- Elements
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- Elements
Asian Languages and Literature • Liberal Arts 81

**Undergraduate Programs**

The Department of Asian Languages and Literatures offers two programs leading to the Bachelor of Arts degree. The major in Asian Languages and Literature is intended for students who want to concentrate on one of the language and literature programs offered by the department. The major in Asian Studies is primarily for those interested in studying the cultures and civilizations of traditional and modern Asia through the courses offered in the departments and related departments.

Both programs offer students the opportunity to develop advanced skills in an Asian language while they study the people, literatures, and cultures of Asia.

Courses in both programs have found courses in education, government, communications, business, and other fields in the United States and Asia.

The department encourages its undergraduate majors to participate in study abroad programs in Asia and has entered into exchange agreements with several universities there.

Every effort is made to maintain a balanced transfer of credit of students studying abroad so as not to hamper progress toward completion of the degree.

**B.A. in Asian Languages and Literature (Chinese, Hindi, Japanese, Sanskrit)**

Majors are required to complete 30 semester hours of advanced courses, as follows:

**STUDIES OF CHINESE**

39.10-11 Second-Year Chinese

39.110-110 Third-Year Chinese

39.114 Chinese Literature: Poetry

39.142 Chinese Literature: Prose

39.180 Modern Chinese Writers

**STUDIES OF HINDI**

39.333-34 Second-Year Hindi

39.184-185 Third-Year Hindi

39.125-130 Indian Literature

39.137 Indian Devotional Literature

**STUDENTS OF JAPANESE**

39.10-11 Second-Year Japanese

39.105-106 Third-Year Japanese

39.141 Traditional Japanese Literature

39.142 Modern Japanese Fiction

**THINKING OF JAPAN**

39.23-24 Second-Year Sanskrit

39.186-187 Third-Year Sanskrit

39.155-156 Indian Literature

39.163 Indian Religious Texts

*With the approval of the major advisor, students may substitute a 2-semester hour of 100-level courses in South Asian studies for third-year Hindi.*
Minor in Asian Languages

A minor in Asian language requires a minimum of 15 semester hours with a grade-point average of 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in advanced courses. Students may earn minors in Chinese, Hindi, Japanese, or Sanskrit. The following courses are considered advanced for the minor.

CHINESE
39:10 Second-Year Chinese 6 h.
39:11 Second-Year Chinese 6 h.

HINDI
Students of Hindi are permitted to complete the advanced course requirement with 11 semester hours.
39:22 Second-Year Hindi 4 h.
39:24 Second-Year Hindi 4 h.
39:18 Third-Year Hindi 3 h.

JAPANESE
39:10 Second-Year Japanese 6 h.
39:11 Second-Year Japanese 6 h.

SANSKRIT
39:22 First-Year Sanskrit 5 h.
39:24 Second-Year Sanskrit 5 h.
39:26 Third-Year Sanskrit 5 h.
39:38 Fourth-Year Sanskrit 3 h.

Sanskrits who begin work in minors in fall semester 1969 or earlier may choose to meet old requirements. Please see an advisor in the Department of Asian Languages and Literatures.

Minor in Asian Studies

A minor in Asian studies requires a minimum of 18 semester hours with a grade-point average of 2.00. Of the 18 semester hours, at least 12 must be taken at The University of Iowa in advanced courses. Courses numbered 39:10 or 39:11 and above are considered advanced for the minor. Students are encouraged to take 39:55 or 39:56 Civilizations of Asia, or 39:18 or 39:19 or 39:20 Asian Humanities (China, Japan, or Korea) as their lower-level course. Students who begin work on minors in fall semester 1969 or earlier may choose to meet old requirements. Please see an advisor in the Department of Asian Languages and Literatures.

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 12-hour program permits students to select courses in their major field and to compensate major with the College of Business Administration and Liberal Arts (see the College of Business Administration section of the Catalog).

Elementary and Secondary Teaching Certification in Chinese and Japanese

Chinese and Japanese majors interested in certification to teach in elementary and/or secondary schools must successfully complete the requirements for a major, or the equivalent, plus designated courses on pedagogy in the Department of Asian Languages and Literatures. In addition, students must be admitted to the College of Education's Student Teaching Program. Completion of the courses in 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 major to teach at the elementary and/or secondary level must consult the College of Education concerning requirements.

Graduate Programs

Master of Arts in Asian Civilization

The graduate program in Asian civilizations provides preparation for doctoral study in a variety of disciplines. It is a site 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 civilization.

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 prepare a plan of study developed in consultation with the advisor. The course of study must conform to one of the following four specialization master's programs: Chinese literature, Chinese linguistics, Chinese language teaching, interdisciplinary studies in Chinese, Japanese literature, Japanese language and pedagogy, interdisciplinary studies in Japanese, Swahili language and literature, Hindi language and literature, and South Asian studies. All students must maintain a 3.0 cumulative grade-point average. Limited credit (up to 6 semester hours) to degree requirements is open to all applicants.

By the end of the first semester in residence, students are expected to demonstrate, either by departmental examination or the successful completion of courses at the appropriate level, an advanced competence in Chinese, Japanese, Hindi, or Sanskrit, defined generally as corresponding to the fourth-year level of language course work in Chinese or Japanese and the third-year level in Hindi and Sanskrit.

Admission

Applicants for graduate admission must meet the general admission requirements of the Graduate College except that a minimum grade-point average of 2.75 is required for constitution admission. In addition, applicants must submit an entrance writing sample of at least 2500 words in English, the equivalent of a term paper, seminar paper, or graduation thesis—to the Department of Asian Languages and Literatures.

Both foreign and nonforeign graduate applications requiring 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 fall semester and October 1 for the spring semester. Students should take the Graduate Record Examination (GRE) General Test early, since admission decisions cannot be made until scores are received.

Financial Aid

The Department of Asian Languages and Literatures offers two levels of support for graduate students in Asian Civilization: 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 as a means of financial aid, provided by the Stanley University of Iowa, Chinese Language Program. Scholarships consist of a cash grant for use in an approved number of approved programs in the department and a stipend for the department.

Each semester students selected to participate in the Iowa Critical Languages Program receive special support. Awards for students majoring in Asian languages have available support from two special sources.

President's Scholarships for Study Abroad in the amount of $5,000 may be used to help students study the culture of a country of interest. A limited number of scholarships are available each year, and priority for study in nontraditional European countries is especially encouraged.

Stanley Scholarships for International Research and Study, 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 continue work in 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 study stipends as well as full or partial tuition support.
Biology

Biology major students must complete a minimum of 5 semester hours in each of the following areas:

1. General Biology
   - Cell Biology
   - Genetics
   - Evolution
   - Microbiology
   - Developmental Biology

2. Zoology
   - Comparative Animal Physiology
   - Comparative Biochemistry
   - Evolutionary Biology

3. Botany
   - Plant Anatomy
   - Plant Physiology
   - Plant Ecology

4. Environmental Science
   - Environmental Chemistry
   - Environmental Geology
   - Environmental Policy

5. Advanced Laboratory
   - Advanced Laboratory Techniques
   - Advanced Experimental Design
   - Advanced Data Analysis

Honors

Students who complete the above requirements and are ranked in the top 10% of their graduating class may be eligible for the Honors program. The Honors program requires students to complete an honors thesis based on independent research conducted under the supervision of a faculty member. The thesis must be approved by the department chair and a faculty advisor. The honors thesis is typically presented at a scholarly conference or at a national or international meeting. Students interested in pursuing honors research should consult with their department chair or a faculty advisor to discuss eligibility and requirements.
Introduction to Research. The elective courses can include up to 4 semester hours of advanced course work in the physical sciences (biophysics, chemistry, geology), as specifically approved courses in the basic science departments of the College of Medicine, or in mathematics courses that have first-semester calculus as prerequisite.

Appropriate electives should carry elementary course prerequisites, be meant primarily for science majors, and not include the required courses in cognate sciences listed below.

Students should choose elective courses in consultation with their advisors.

**OTHER DISCIPLINES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:16</td>
<td>Principles of Chemistry I</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>4:16</td>
<td>Principles of Chemistry Laboratory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>4:21</td>
<td>Organic Chemistry I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>991:10B</td>
<td>Biochemistry and Molecular Biology I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>29:11-12</td>
<td>College Physics I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>20:17-18</td>
<td>Introductory Physics I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>22M:25</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:16</td>
<td>Calculus for the Biological Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:35</td>
<td>Engineering Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:45</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>8W-10</td>
<td>Experimental Writing (or equivalent)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>29.30 s.h.</strong></td>
</tr>
</tbody>
</table>

**SUGGESTED FRESHMAN YEAR SCHOLARSHIP**

The following five-year schedule is recommended for students seeking either the B.S. or B.A. degree in biology.

**First Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:10 or 10:15</td>
<td>1-2 bio or 1-2 chm</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>4:16</td>
<td>Chemistry (4:16)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8W-10</td>
<td>Experimental Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:25</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:16</td>
<td>Calculus for the Biological Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8W-10</td>
<td>Experimental Writing (or equivalent)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>28 s.h.</strong></td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>8W-10</td>
<td>Experimental Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:25</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:16</td>
<td>Calculus for the Biological Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8W-10</td>
<td>Experimental Writing (or equivalent)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>28 s.h.</strong></td>
</tr>
</tbody>
</table>

**BACHELOR OF ARTS IN BIOLOGY**

The B.A. program provides more opportunities among the required courses than does the B.S. program. It also provides more flexibility in course selection for satisfying the elective hour requirement.

Students seeking the B.A. in biology are required to take the following courses.

**BIOLOGICAL SCIENCES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1</td>
<td>Introduction to Botany</td>
<td>4 s.h.</td>
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<td>4 s.h.</td>
</tr>
<tr>
<td>991:10B</td>
<td>Biochemistry and Molecular Biology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>29:11-12</td>
<td>College Physics I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>20:17-18</td>
<td>Introductory Physics I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>22M:25</td>
<td>Calculus I</td>
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<td>Calculus for the Biological Sciences</td>
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</tr>
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<td>8W-10</td>
<td>Experimental Writing (or equivalent)</td>
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<td><strong>Total</strong></td>
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</tbody>
</table>

Of the 13 semester hours of elective credit, up to 9 may be taken in other natural sciences or mathematics. Of these 6 semester hours in nontoxicological science may be in 20:104

**INTRODUCTION TO PHILOSOPHY OF SCIENCE** or

16:132 The Scientific Revolution, or 16:133 Science in the Modern Age. Other restrictions and limitations in courses to satisfy the elective credit requirement apply as for the B.S. degree.

**BACHELOR OF SCIENCE IN BOTANY**

In addition to the general education requirements of the College of Liberal Arts, students seeking the B.S. in botany are required to satisfy the following course requirements.

**BIOLOGICAL SCIENCES**

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<td>2:100</td>
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</tr>
<tr>
<td>2:136</td>
<td>Field Mycology</td>
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</tr>
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<td>2:101</td>
<td>Plant Taxonomy</td>
<td>2.5 s.h.</td>
</tr>
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<td>Summer Flora</td>
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<td>2:105</td>
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**SUGGESTED FRESHMAN YEAR SCHOLARSHIP**

The following five-year schedule is recommended for students seeking either the B.S. or B.A. degree in biology.

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<td>Principles of Chemistry Laboratory</td>
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</tr>
<tr>
<td>4:21</td>
<td>Organic Chemistry</td>
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</tr>
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<td>991:10B</td>
<td>Biochemistry</td>
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</table>

**BACHELOR OF ARTS IN BIOLOGY**

The B.A. curriculum provides a broad background in botany yet allows more electives than does the B.S. degree.

In addition to the General Education requirements of the College of Liberal Arts, students majoring in botany are required to take the following courses.

**BIOLOGICAL SCIENCES**

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Ecology and evolution—one of these:
2:111 Plant Ecology 4 s.h.
2:116 Field Ecology 4 s.h.
2:131 Evolution 4 s.h.
2:134 Genetcs 4 s.h.
Biology of neoolitic plants—one of these:
2:102 Algae and Fungi 4 s.h.
2:106 Physiology Lichenology 4 s.h.
2:139 Field Arachnology 3 s.h.
One additional 100-level course in botany or organismal sciences

Other Disciplines:
4:154 Principles of Chemistry I 5 s.h.
4:16 Principles of Chemistry LAB 2 s.h.
4:121 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II 3 s.h.
or 99:110 Biochemistry or 99:120 Biochemistry and Molecular Biology 4 s.h.
One of these:
22:10 Calculus for the Biological Sciences 4 s.h.
22:14 Calculus for the Biological Sciences 4 s.h.
22:19 Elementary Functions 3 s.h.
22:20 Calculus I 4 s.h.
Honors in Biology or Botany
The honors program in biology or botany gives superior students membership in a small, active group of undergraduates with common interests. Honors students gain an introduction to the pursuits of practicing scientists by associating with one of the department's research groups or by participating in independent research projects guided by faculty members.

Students in the University Honors Program may graduate with honors in biology or botany by completing the following requirements, in addition to the regular requirements for the B.S. or B.A. All honors students must maintain a grade-point average of at least 3.20 both overall and in all biology course work. Those majoring in biology must complete at least 3.20 semester hours of honors course work in biology, including at least 2 semester hours in 2:196.Honors Laboratory Research, at least 2 in 2:197 Honors Readings, and at least 1 in 2:198 Honors Seminar in Biology or a graduate- or senior-level seminar. Three biology majors may count 3 of the 6 semester hours of honors course work toward the 11-semester-hour elective requirement for the B.S. or B.A. in biology.

Botany honors majors must complete 4.5 semester hours of honors course work, of which at least 4 must be in 2:196 Honors Laboratory Research.

All honors candidates must write a research proposal and a final research paper (honors thesis). Both must be approved by the student's research supervisor and must be submitted to the honors program director. Honors majors defend the honors thesis before a committee of the honors research advisor, the student's research supervisor, and a third faculty member chosen by the student and the honors advisor.

Minor in Biology
Students majoring in other subjects may earn a minor in biology. The biology minor requires 15 semester hours of credit in biology, microbiology, and/or preprofessional courses, including at least 12 semester hours in 100-level courses taken at The University of Iowa, with a minimum grade-point average of 2.00, and excluding those designed primarily for nonscience students. Biology courses taken on a pass/fail basis do not apply toward requirements for the biology minor. Biology courses taken at other institutions do not apply toward the required 12 semester hours of 100-level courses.

Teacher Certification
Students preparing to teach in secondary schools should consult the "College of Education" section of the Catalog regarding requirements for teacher certification.

Introduction to Research
The department offers 2:155 Special Topics and 2:196 Introduction to Research to acquaint majors in the biological sciences with the nature of practicing scientists' work—through association with one of the department's research groups in experiments, discussion of current research, study of specialized topics, and attendance at research lectures.

Graduate Programs
The graduate programs of the department are designed to train scientists who can participate in research in private, educational, or governmental environments, and who are experienced in the use of modern techniques of teaching biology. In the last two decades, some Ph.D. graduates of the department have subsequently been appointed to college or university faculties, while others have entered industry or research positions. A substantial number of students completing their training with an M.S. degree have obtained technical or professional positions. Other graduates are teaching at the secondary school level or in community colleges.

Prior to registration in August, all new graduate students take a departmental examination covering topics in four areas of biology: developmental biology, genetics, cell physiology, and animal physiology, and evolution or ecology.

On the basis of the previous examination results, students may be excused from further work in one or all of these fields, or may be advised to take specific courses to enhance their backgrounds in these areas. Students must make up any undergraduate deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor's degree outside of the biological sciences may require modification of certain test requirements; the student's degree committee will decide whether portions of the requirements may be waived.

All members of the biological sciences faculty engage in researching fundamental questions about major biological problems. Areas of departmental research include biochemistry, developmental biology, genetics, molecular biology, neurobiology, ecology, physiology, anatomy, histology, toxicology, paleontology, palynology, plant biochemistry, taxonomy, and parasitology. As a group, professors and students work in cooperation under the supervision of graduate students. In addition to the faculty, these students are involved jointly by faculty in those departments. On admission, each new graduate student is assigned a temporary advisor, who complements the research program of the student and assists the student through initial requirements and acts as the student's advisor. For purposes of graduate student evaluation, research training is recognized by four designations: developmental biology, ecology and evolution, genetics, and physiology. The department expects new students to do research in these laboratories in a rotating basis during their first year. A graduate school committee evaluates and advises students initially. After the first two semesters, students choose a permanent sponsor (adviser) and a Ph.D. advisory committee.

Master of Science in Biology
Although the department emphasizes the Ph.D. degree, the M.S. is available with and without thesis.

With Thesis
The M.S. in biology with thesis requires 30 semester hours of course work and a thesis based on original research. Ordinarily, 6-9 semester hours are assigned to thesis research and writing. The remaining hours are selected in consultation with the student's advisory committee to make up undergraduate deficiencies and are limited to students' backgrounds and career goals. Students receive academic credits for courses they are required to take, but credit awarded for courses required by the advisory 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 course work, including at least 6 hours of coursework in biological sciences.

Credit earned at 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
Master of Science in Botany

The department offers the M.S. with both and without thesis. For both options, students must submit a proposal of study approved by a guidance committee composed of three members of the graduate faculty, one of whom may be another department. Students must prepare a program of study during their first semester as residents as regular graduate students. Students also must maintain a grade-point average of 3.0 in all courses (except research) that they complete before taking the final exams. Additional requirements for the two options are as follows:

Thesis

Students complete at least 30 semester hours of graduate courses in botanical science or supporting areas, as prescribed by the guidance committee. Of these, 9 semester hours of research and theses (222-224 and 230) are required; additional research hours may be taken, but no more than 5 may be counted toward the 30-semester-hour degree requirement. Students may conduct independent research in any area of botanical science, but they are to graduate (individual committee members may require outside or limited consultation). The program is completed by a written thesis, which is to be defended in a final oral examination. The examination committee and the thesis must be approved by the guidance committee.

Doctor of Philosophy in Biology

The program culminates in students’ preparation of a dissertation based on original, independent research. Students must take a final examination, which covers the thesis and the specialized field the thesis represents, before the department can accept the thesis.

Doctor of Philosophy in Botany

The Ph.D. is primarily a research degree. The student must conduct original research of sufficient magnitude and value to be able to achieve a degree and to succeed on the final examination committee. In addition, the student must complete 72 semester hours of graduate course work and research as prescribed by the guidance committee (hours earned for the master's degree may be counted toward the 72-semester-hour minimum). The guidance committee also may require that the course work beyond the 72 semester hours be taken to meet specific proficiency requirements (e.g., language or statistical methods) or to make up for background deficiencies (e.g., chemistry or general botany course work).

During the first semester to residence as Ph.D. candidate, students must submit a program of study for approval by a guidance committee. Students must fulfill all course work requirements of the program of study with changes made only with the formal (written) approval of the guidance committee.

Students complete an initial research proposal within two or three semesters after admission to the Ph.D. program (pete M.S.). The proposal, which should outline the specific objectives, significance, and methodology of the chosen research project, must gain written acceptance from members of the guidance committee and copies of it must be distributed. An oral presentation of the proposed research must follow acceptance of the initial research proposal within six months.

Once basic formal course work has been completed, candidates pass two comprehensive oral examinations. They select a doctoral thesis based on original research and complete a final examination committee for review; present the results of the thesis research in a dissertation defense; and pass the final doctoral examination, which is primarily a defense of the thesis, methodology, and significance of the proposed thesis.

Financial Aid

All graduate students making satisfactory progress in the department receive support from teaching assistantships, fellowships, or research assistantships provided by the University or by departmental funds generated by the department. Fellowships and teaching assistantships are available. Students normally begin teaching duties during the research rotation period. Subsequently, students may be considered for any of the following:

- Teaching assistantship: Assistants to an assistantship require a minimum student grade of 3.0 but can be given approximately 20 hours of work per week.
- Appointments to assist in teaching assistantships require 20 hours of work per week.
- Students are encouraged to apply for assistantships.

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) must be submitted with the application. A valid 8.0 B.S. or B.A. degree from an accredited institution is required. Applicants for graduate admission should have a grade-point average of at least 3.00 and a Graduate Record Examination (GRE) General Test (verbal plus quantitative) score of at least 1100. These criteria are not absolute; instead, they serve as 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 (GRE) Advanced biology test and submit their scores.

All applicants and those who have completed undergraduate programs in biology or the life sciences must present a written thesis for graduate study.

Admission

All applicants and those who have completed undergraduate programs in biology or the life sciences must present a written thesis for graduate study.

- General requirements: Students applying for admission to the college must be able to demonstrate knowledge of basic biology and chemistry, molecular biology, microbiology, and other related areas. Applications should be submitted by February 1.

Master of Science

Students applying for admission to the master of science program in botany should have a bachelor's degree in one of the biological sciences. Students with another degree in another field may need to register as
special students (49) and make up the student body of the university's degree program prior to consideration for admission. Special students must complete chemistry, physics, and mathematics requirements in addition to the biology core courses included 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 TOEFL in English as a Foreign Language (TOEFL), an evaluation of the applicant's transcript(s), and Letters of recommendation. Foundations.

Facilities

The department is housed in four separate buildings, with facilities for the care of many kinds of animals and for research with viruses, DNA sequencing and synthesis, electron microscopy, tissue, plant, and marine organisms. It has numerous walk-in and match-in environmental chambers for special cell culture or plant and animal care needs. The department is equipped to carry out the most advanced research in all areas in which graduate teaching is conducted. All modern equipment including instruments, fluorometer microscopes, controlled environment rooms, and autoclave counters is available for graduate student research.

A number of the department's laboratories are equipped with standard as well as sophisticated apparatus for research in growth regulation, physiopharmacology, plant molecular biology, biochemical systems, paleobotany, virology, ecotoxicology, plant botany, microbiology, and cell biology. Students conducting research projects that require plant cultivation have access to greenhouses and special culture rooms with controlled environments. A plant physiology laboratory associated with greenhouse is available.

As herbivores for research and general study contains more than 200,000 specimens. Standard specimens include extensive collections of seeds and fruits from Iowa and the Midwest, and there are special research collections from Mexico and central America and the Yale herbarium of herbs. There is a large repository of leaf and petiole plants. A herbarium gene is available within a few miles of the campus for field trips and experimental projects.

In addition to department facilities, the patient department's laboratories include specialized methods in the electron microscope area. A herbarium facility does panning and screening and provides research with microorganisms and plant material. A high-temperature lab grown large amount of microorganisms (e.g., 100 lb) for use as protein isolation. The department has its own electron microscope facility, and there is a University electron microscopy lab with scanning and transmission electron microscopes. Computing facilities are available in the department and the University's Computing Center. Graduate students have their own computer room with IBM PCs and terminals linked to the campus mainframe. One of the only computerized motion analysis facilities in the area is available to the Laboratory of Biology Building. Finally, there are animal rooms and growth media preparation rooms.

In short, the department and the University provide the necessary facilities to do biological science from the molecular to the population level.

Iowa Lakeside Laboratory

Courses in biology at Iowa Lakeside Laboratory are selected for credit in the biology minor. The laboratory, located on West Lake Okoboji in northwestern Iowa, offers excellent courses for training in marine biology, ichthyology, limnology, aquatic ecology, polychaete biology, and plant taxonomy. See "Iowa Lakeside Laboratory" in this section of the Catalogue.

Courses

Many courses include field and laboratory components.

Primary for Undergraduates

2000 Cooperative Education Internship 1 h.

291 Introduction to Biology 4 h.

292 Oceanography 1 h.

391 Field Biology 4 h.

392 Animal Behavior 4 h.

393 Animal Behavior 4 h.

394 Animal Behavior 4 h.

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997 Animal Behavior 4 h.

998 Animal Behavior 4 h.

999 Animal Behavior 4 h.

For Undergraduates and Graduates

1200 Last Chance for Predatory Survey 4 h.

1300 Land Use and Ecosystem Survey 4 h.

1400 Land Use and Ecosystem Survey 4 h.

1500 Land Use and Ecosystem Survey 4 h.

1600 Land Use and Ecosystem Survey 4 h.

1700 Land Use and Ecosystem Survey 4 h.

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2800 Land Use and Ecosystem Survey 4 h.

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3000 Land Use and Ecosystem Survey 4 h.

3100 Land Use and Ecosystem Survey 4 h.

3200 Land Use and Ecosystem Survey 4 h.

3300 Land Use and Ecosystem Survey 4 h.

3400 Land Use and Ecosystem Survey 4 h.

3500 Land Use and Ecosystem Survey 4 h.

3600 Land Use and Ecosystem Survey 4 h.

3700 Land Use and Ecosystem Survey 4 h.

3800 Land Use and Ecosystem Survey 4 h.

3900 Land Use and Ecosystem Survey 4 h.

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5900 Land Use and Ecosystem Survey 4 h.

6000 Land Use and Ecosystem Survey 4 h.

6100 Land Use and Ecosystem Survey 4 h.

6200 Land Use and Ecosystem Survey 4 h.

6300 Land Use and Ecosystem Survey 4 h.

6400 Land Use and Ecosystem Survey 4 h.

6500 Land Use and Ecosystem Survey 4 h.

6600 Land Use and Ecosystem Survey 4 h.

6700 Land Use and Ecosystem Survey 4 h.

6800 Land Use and Ecosystem Survey 4 h.

6900 Land Use and Ecosystem Survey 4 h.

7000 Land Use and Ecosystem Survey 4 h.

7100 Land Use and Ecosystem Survey 4 h.

7200 Land Use and Ecosystem Survey 4 h.

7300 Land Use and Ecosystem Survey 4 h.

7400 Land Use and Ecosystem Survey 4 h.

7500 Land Use and Ecosystem Survey 4 h.

7600 Land Use and Ecosystem Survey 4 h.

7700 Land Use and Ecosystem Survey 4 h.

7800 Land Use and Ecosystem Survey 4 h.

7900 Land Use and Ecosystem Survey 4 h.
Major in Ancient Civilization

This major is sponsored by the Schools of Art and Art History and Religion and the Department of Classics and History. The major concerns the ancient civilizations of the Mediterranean world and draws on courses offered by various departments of the University. It is not primarily a program for a graduate degree program in classics; nevertheless, it provides a sound basis for preparing teachers at the elementary school and junior college levels. In addition to the normal college requirements for the B.A., the following 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.

14/15 Seminar in Ancient Civilization
3 s.h.

Honors

For exceptional students 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 reading and discussions are on an ancient author or a field in ancient history or literature chosen by students and the instructor. During the first semester students present an essay based on 3 weeks' work; at the end of the second semester they present a long paper, which is read by two members of the department.

Minors

A minor requires a minimum of 15 semester hours in classics courses with a minimum grade-point average of 2.00. Of the 15 semester hours, 12 must be in advanced courses taken at the University of Iowa. Students may select a minor from the four areas: Greek, Latin, classics, and ancient civilization. The following courses are considered advanced for the minor.

Greek
14/15 Second-Year Greek III
6 s.h.

All courses numbered 14/15 or higher
6 s.h.

Courses numbered 14/15-100 do not count toward the minor because they are not courses in the Greek language.

Latin

20/16 First-Year Latin II
6 s.h.

20/17 First-Year Latin III
6 s.h.

20/18 Age of Augustus
3 s.h.

20/19 Age of Cicero
3 s.h.

All courses numbered 20/18 or higher
3 s.h.

Courses numbered 20/100-120 do not count toward the minor because they are not courses in the Latin language.

Classics

14/16-17 Second-Year Greek II
6 s.h.

20/16-17 Second-Year Latin II
6 s.h.

20/17 Age of Cicero
3 s.h.

20/18 Age of Augustus
3 s.h.

20/19 Age of Cicero
3 s.h.

*These courses or their equivalents are required for the minor in classics, so that students will have both Greek and Latin.

Ancient Civilization

All courses in Greek numbered 14/100 or above

All courses in Latin numbered 20/100 or above

Appropriate courses from the Schools of Art and Art History and Religion and the Department of History and Philosophy, as selected by the undergraduate committee in the major in ancient civilization.

14/15 Introduction to Ancient Art
3 s.h.

20/18 Age of Cicero
3 s.h.

20/19 Age of Augustus
3 s.h.

Language for Nonmajors

Students who wish to satisfy one or more courses in an area of the University and in another department require for the B.A. by studying Greek or Latin:

14/11-12 Elementary Greek I
6 s.h.

14/11-12 Second-Year Greek II
6 s.h.

14/11-12 Elementary Latin I
6 s.h.

14/11-12 Second-Year Latin II
6 s.h.

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 101-199.

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 in the major by taking courses numbered 199 and above. Usually, students in the Latin program who have not had Greek are expected to include at least elementary Greek in their programs.

Doctor of Philosophy

Requirements for the Ph.D. include course work as listed below, precomprehensive and comprehensive examinations, and a dissertation.

Required Courses

Greek rapid readings, one semester
Latin rapid readings, one semester
Advanced Greek composition or equivalent
Advanced Latin composition or equivalent
Survey of Ancient Near East and Orient
The Hebrew World and Rome

Any two of:

Complete one course in Greek
Complete one course in Latin
Greek Paleography
Latin Paleography

The minimum Graduate College requirement is 72 semester hours; the difference is to be made up in Master's offerings.

Ph.D. Examinations

Comprehensive exams must be taken in
French competence, Latin competence
Greek competence
Greek literature
Latin literature
Greek literature
Latin literature

Special field of author (Greek) up to 3 hours
Special field or author (Latin) up to 3 hours

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 classics subjects and a small library. The Classics Council meets in the graduate student office, contains a valuable collection of classical texts in honor of Almena, Potamkin, and Hernández. The University is supporting the institution of the departmental efficiency by Classics Studies at Athens, the American Academy in Rome, and the Vergilian Society, thereby making these facilities available to its faculty and students.

Courses

Greek for Undergraduates

14/1 Elementary Greek
4 s.h.

14/2 Second-Year Greek I
4 s.h.

14/4 Second-Year Greek II
4 s.h.

14/2 Elementary Latin
4 s.h.

14/4 Second-Year Latin I
4 s.h.

14/4 Second-Year Latin II
4 s.h.

14/13 Roman and English
3 s.h.

14/16 Roman and English
3 s.h.

Greek for Undergraduates and Graduates

14/12 Rapid Greek and Latin
3 s.h.

Latin for Undergraduates and Graduates

14/13 Latin for Undergraduates and Graduates
3 s.h.

14/14 Latin for Undergraduates and Graduates
3 s.h.

14/15 Latin for Undergraduates and Graduates
3 s.h.

14/16 Latin for Undergraduates and Graduates
3 s.h.
COMMUNICATION STUDIES

Advisors: John J. Luke
Professors: Charles F. Akers, Dudley Atchley, Michael F. Bolick, Bruce E. Greer, David J. Hanes, Donald M. Terry

Graduate degrees: Ph.D. in Communication Studies, minor in Communication Studies

The Department of Communication Studies is concerned with communicators as a class of person and with the ways in which people are influenced by others in their society and in the society in which they live; and as an institution for the study of the operation of the society, especially a highly technological society. The department is also concerned with communication as an art and function, as expression, and as a means of conveying ideas. This concern manifests itself in studies of personal, social, public, and other mass-mediated forms of communication.

The department offers programs described under the headings of communication (B.A. and M.A.), communication education (B.A. and M.A.), communication research (B.A. and M.A.), and rhetorical studies (B.A. and M.A.). Professors and researchers located in the department should talk with advisors in the Undergraduate Academic Advising Center; juniors and seniors are assigned departmental advisors. All students are required to complete 12 hours of communication courses. Students considering graduate work in communication are advised to complete 18 hours of communication courses. Students seeking a major in communication education must complete 24 hours of communication courses. Students wishing to major in communication education must complete a minimum of 30 semester hours of courses in communication education.

Graduate Programs

Master of Arts

A student may earn a general M.A. degree in communication by completing a total of 24 semester hours of graduate courses, including at least 12 credit hours in courses numbered 666-699, and 3 credit hours in courses numbered 666-680. In addition to the graduate courses, the student must complete at least 6 credit hours in courses numbered 766-780. The student must also complete a satisfactory final examination, which is subject to the approval of the graduate committee.

Doctor of Philosophy

The Graduate School offers the Doctor of Philosophy degree in communication studies. The student must complete a minimum of 30 semester hours of graduate courses, including at least 12 credit hours in courses numbered 666-680, and 3 credit hours in courses numbered 666-680. In addition to the graduate courses, the student must complete at least 6 credit hours in courses numbered 766-780. The student must also complete a satisfactory final examination, which is subject to the approval of the graduate committee.

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Communication Education

The communication teaching major requires a minimum of 33 semester hours of coursework in the Department of Communication Studies. Students must take four foundation courses across four core areas; four state required communication courses, two elective courses; and any other communication studies course, with the approval of a communication education advisor.

To strengthen both their major and their general college experience, students are advised to complete a minor concentration in English, reading, or other related fields, and to accumulate a record of at least one of the following: foundation, media studies, and film, readers' theater, and theater activities.

Teaching Minor Certification in Communication Studies

Completion of 23 semester hours of course work in communication and theater arts is required. These hours must be approved by an advisor.

Communication Research

The program in communication research leads to the M.A. or the Ph.D. Programs designed for individual students provide background for and experience in research on interpersonal communication and group communication from a social science perspective with special emphasis on group decision making and relational communication. In addition to general departmental requirements, students must meet the requirements of their selected area of specialization: media and culture, and mass media.

Media Studies and Film

Undergraduate Program

This program is in and for students interested in film or electronic media as a 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 develop general knowledge of the cultural and historical context. Courses are designed to provide students with an understanding of the major media's place in personal and cultural experience. Courses are sequenced to enable students to gain an understanding of the history, theory, and criticism of the electronic or film media before entering the world of production. As study area, 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.

Graduate Program

Students emphasizing production learn to write, plan, shoot, edit, and present film, audio, and television programs. In addition, students obtain a background in the history of the mass media so that they understand reasons for the industries present status and possible alternatives. A grounding in media theory and criticism teaches students to appreciate what goes into creating a successful work and to understand its impact that creative and economic/political decisions may have on audiences and society at large.

To graduate with a specialization in media studies and film, students must complete 30 semester hours in the requirements, including the following:

Four core courses across the four areas of film, interpersonal communication, media studies, and mass media.

At least four additional 300 level, including at least one course above 300 level.

At least 6 semester hours of additional departmental coursework.

The department and division sponsor an internship program that provides supervised work experience in and a year-long undergraduate internship program that offers students an opportunity to work in the film industry. Students gain valuable experience in actual film and video production, and they learn the skills necessary to succeed in today's competitive environment.
at least 15 semester hour of courses in theatrical studies, including a seminar (any course numbered 500 or above); at least 5 semester hour of courses in other division of this department; and a comprehensive examination across three areas of study determined by students and their committees.

Doctor of Philosophy

The program leading to the Ph.D. in theatrical studies is designed to give conditions a mature grasp of the major preparation and perspectives established in this division and to develop research competence essential to a life of productive scholarship.

Work in related departments—political science, history, sociology, English, comparative literature, anthropology, American studies, and journalism—complements theatrical studies course offerings. Many doctoral students also do extensive work in media studies. Them, or communication research to improve their range of teaching opportunities and their research skills.

Persons who want information on basic requirements should write to the department. Teaching and research experiences are key available, evaluation of these applications begins mid February each year.

Institute for Cinema and Culture

The Institute for Cinema and Culture serves as a bank of information concerning availability of films. Film materials for faculty and students. It helps departments, faculty members, and student groups bring to campus films and speakers that extend an interdisciplinary audience.

Each semester the institute sponsors a symposium and related film series on topics that alternate between generic, aesthetic or thematic interest and those focusing on a specific culture or era. The program is towards the Cinema and Culture (108-176, 198-176) gives undergraduates and graduate students an opportunity to prepare for the symposium through weekly readings and screenings.

Facilities

The Communication Studies Building is designed specifically to meet both research and instructional needs. Included are two photographic study, a complete video postproduction facility, a film sound stage, a scene shop, areas for animattic and graphic production, a radio studio, and an audio lab. The audio studio serves the needs of courses throughout the program. A large pool of equipment is available to support student work in both studio and location settings. Students and scholars have access to a video and film library, individual screening rooms, a state-of-the-art equipment for the study of the blind and other visually impaired, and a computer for experimental and survey research and computers for research efforts. The Communication Studies building is one of the best facilities of its kind in higher education.

Courses

Interdisciplinary

36-600 Cooperative Education Internship 3 h.
36-684 Hours Colloquium 1 h.
Prerequisites: 2.0 cumulative gpa required.
36-998 Hours in Communication Studies 3 h.
36-447 Problems in Communication Studies 2 h.
Topics vary. Prerequisite: 2.0 cumulative gpa required.
36-178 Workshop in Teaching Communication and Forensics 2 h.
Methods, materials, preparation, evaluation of teaching and understanding students in communication, and the ethical responsibilities of the teacher. Subject matter varies. 40 h. maximum credit. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-240 Independent Study 1-4 h.
Advanced study in research topics. Prerequisite: 2.0 cumulative gpa required. Fall: see Schedule.
36-208 The Art of Research 4 h.
Communication studies majors. 1 s f. a. of studies: Research in communication. Topic varies, it is of interest to communication students. 4 h. maximum credit. Fall: see Schedule.
36-855 Ph.D. Dissertation 1 h.
36-685 Ph.D. Dissertation 1 h.
Communication

A 2.3 cumulative grade point average is required for enrollment in all courses except 36-440 and 36-440 (fall term 2000, a 2.5 grade point average will be required). Additional prerequisites are listed in course descriptions.

36-300 Public Speaking 3 h.
Central elements of argumentation, persuasive speaking, ethos, rhetoric to speaking and speaking. Prerequisites: 1.0 cumulative gpa required.
36-301 Group Communication 3 h.
Application of group process, teaching, leadership, group behavior, group dynamics, process to civic, business, and social settings. Prerequisites: 2.0 cumulative gpa required.
36-321 Intercultural Communication 3 h.
Intercultural socialization between and within individuals of varying social, cultural, political, and religious backgrounds. Prerequisites: 2.0 cumulative gpa required.
36-335 Public Relations and Policy 3 h.
Public relations in business, education, other professions. Prerequisites: 2.0 cumulative gpa required.
36-346 Elements of Debate 3 h.
Debate: meaning, development of rhetoric, structure, debating to the central theme of debate. Prerequisites: 2.0 cumulative gpa required.
36-177 Organizational Communication: Theory and Practice 3 h.
Major concepts, theories of organizational communication, communication process, role and role of communication, application of organizational communication concepts, theories in social, industrial, organizational processes, functional relationships of organizational communication. Prerequisites: 2.0 cumulative gpa required.
36-176 Persuasive Communication 3 h.
Application of persuasive communication, public speaking, career preparation. Prerequisites: 2.0 cumulative gpa required.
36-117 Communication Workshop 1 h.
Communicative skills with reference to people from other cultural backgrounds. Prerequisites: 2.0 cumulative gpa required.
36-118 Theory and Practice of Argumentation 3 h.
Theory and practice of argumentation. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-254 Research Methods 3 h.
Research methods in communication. A general overview of methods, data collection techniques. Prerequisites: Approval of the Graduate Education Office is required.
36-111 Interdisciplinarity in Business, Education, Other Professions 3 h.
36-112 Professional Practice 1 h.
Communication rules and procedures, functions of communication in greater public arena. Fall: see Schedule.
36-190 Business and Politics 3 h.
Theoretical, empirical and business ethics, state, local level decision making, corporations, civic organizations, corporate management. Fall: see Schedule.
36-190 Ethics of Business Communication 3 h.
Ethical problems in business settings and ethical implications of corporate strategies, codes of ethics, and professional codes of ethics. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-191 Socialization and Culture 3 h.
Sociological theories of socialization, the process of learning, socialization as an economic process, socialization and communication. Fall: see Schedule.
36-192 Theories of Professional Communication 3 h.
Communication in professional roles, strategies for developing professional documents. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-194 Management of Communication 3 h.
Management of an organization, administrative concepts, communication process, political strategies. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-195 American Public Communication 3 h.
Historical, political, social, cultural, and economic forces that have shaped American public communication. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-195 Organizational Communication 3 h.
Organizational communication, interpersonal strategies for communication, public relations, organizational communication. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-196 Communication and Power 3 h.
Communication and power, political communication, public relations, mass media, communication theory. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-197 Communication and Media 3 h.
Communication and media, mass media, mass communication, media systems, mass media, and the audience. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-198 Organizational Communication 3 h.
Organizational communication, interpersonal strategies, public relations, communication theory. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-199 Organizational Communication Workshop 1 h.
Communicative skills with reference to people from other cultural backgrounds. Prerequisites: 2.0 cumulative gpa required.
36-210 Theory and Practice of Argumentation 3 h.
Theory and practice of argumentation. Prerequisites: 2.0 cumulative gpa required. Fall: see Schedule.
36-211 Research Methods 3 h.
Research methods in communication. A general overview of methods, data collection techniques. Prerequisites: Approval of the Graduate Education Office is required.
36-212 Professional Practice 1 h.
Communication rules and procedures, functions of communication in greater public arena. Fall: see Schedule.
## DANCE ELECTIVES

Seven semester hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>137-110</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137-115</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

## DANCE THEORY

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>137-101</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

## DANCE TECHNIQUE

Twenty semester hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>137-127</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137-128</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137-129</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137-130</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137-131</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137-132</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

## DANCE EDUCATION

Four semester hours from dance elective listed as required courses under "Bachelor of Arts."
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 technical audition, review of videotaped choreographic work, and letters of recommendation. The M.F.A. program is designed to be completed in one summer and two academic years, but students who have completed some of the prerequisites before entering the program may complete it in five semesters.

Students selecting the choreography or performance track. A total of 60 semester hours is required.

Prerequisites
Advanced technique (ballet and modern) Demonstrated accomplishment in choreographic music for dance or equivalent.

Required Courses
DANCE CORE
137.141 Elementary Ballet Pedagogy 3 s.h.
or
137.144 Teaching of Modern Dance 3 s.h.
137.200 Graduate Seminar in Dance 2 s.h.
137.201 Graduate Production Producer 1 s.h.
137.202 Dance Theory 3 s.h.
137.234 Graduate Improvisation 10 s.h.
137.277 Thesis 6 s.h.

DANCE TECHNIQUE
Fifteen semester hours from the following courses may be repeated:
137.213 Graduate Modern Ballet III 3 s.h.
137.214 Graduate Modern Ballet II 3 s.h.
137.215 Graduate Modern Ballet I 3 s.h.
137.224 Graduate Modern Dance II 3 s.h.
137.226 Graduate Modern Dance I 3 s.h.
Ballet students must take a minimum of 4 semester hours of modern dance; students in modern dance must take a minimum of 4 semester hours of ballet.

ENHANCE COURSES—CHOREOGRAPHY TRACK
137.206 Graduate Dance Performance 2 s.h.
137.230 Graduate Choreography I 2 s.h.
137.231 Graduate Choreography II 2 s.h.
137.232 Graduate Choreography III 2 s.h.
137.233 Graduate Choreography IV 2 s.h.
half for dance independent
Choreography (one semester hour
for each project) 4 s.h.

ENHANCE COURSES—PERFORMANCE TRACK
137.107 Repertory Dance Company 8 s.h.
137.206 Graduate Dance Performance 4 s.h., (one semester hour for each performance)
137.274 Graduat independet
Choreography (one semester hour for each project) 2 s.h.

ELECTIVES
M.F.A. candidates must earn a total of 9 semester hours in elective courses numbered 100 or higher. A minimum of 5 hours must be earned in nontheatrical courses; the remaining 3 may be earned in dance or nontheatrical courses.

Facilities
The dance department has some of the finest facilities in the country: a studio, and movement and laboratory computer rooms, and the own performance theatre space for informal concerts. Sherlock Auditorium, the University's premiere performance hall, is available for formal concerts.

Courses
Primarily for Undergraduates
137.000 Comprehensive Education Internship 5 s.h.
137.1 Teaching I 2 s.h.
137.2 Beginning Jazz 2 s.h.
137.3 Beginning Ballet 1 s.h.
137.341 Beginning Tap 2 s.h.
137.422 Beginning Modern Dance 2 s.h.
137.431 Beginning Contemporary II 2 s.h.
137.442 Beginning Contemporary I 2 s.h.
137.451 Beginning Tap 2 s.h.
137.461 Beginning Jazz 2 s.h.
137.471 Beginning Modern Dance 2 s.h.
137.481 Beginning Contemporary I 2 s.h.
137.491 Beginning Contemporary II 2 s.h.
137.501 Beginning Jazz 2 s.h.
137.511 Beginning Tap 2 s.h.
137.521 Beginning Modern Dance 2 s.h.
137.531 Beginning Contemporary I 2 s.h.
137.541 Beginning Contemporary II 2 s.h.
137.551 Beginning Tap 2 s.h.
137.561 Beginning Jazz 2 s.h.
137.571 Beginning Modern Dance 2 s.h.
137.581 Beginning Contemporary I 2 s.h.
137.591 Beginning Tap 2 s.h.
137.601 Beginning Jazz 2 s.h.
137.611 Beginning Tap 2 s.h.
137.621 Beginning Modern Dance 2 s.h.
137.631 Beginning Contemporary I 2 s.h.
137.641 Beginning Tap 2 s.h.
137.651 Beginning Jazz 2 s.h.
137.661 Beginning Modern Dance 2 s.h.
137.671 Beginning Contemporary I 2 s.h.
137.681 Beginning Tap 2 s.h.
137.691 Beginning Jazz 2 s.h.
137.701 Beginning Modern Dance 2 s.h.
137.711 Beginning Contemporary I 2 s.h.
137.721 Beginning Tap 2 s.h.
137.731 Beginning Jazz 2 s.h.
137.741 Beginning Modern Dance 2 s.h.
137.751 Beginning Contemporary I 2 s.h.
137.761 Beginning Tap 2 s.h.
137.771 Beginning Jazz 2 s.h.
137.781 Beginning Modern Dance 2 s.h.
137.791 Beginning Contemporary I 2 s.h.
137.801 Beginning Tap 2 s.h.
137.811 Beginning Jazz 2 s.h.
137.821 Beginning Modern Dance 2 s.h.
137.831 Beginning Contemporary I 2 s.h.
137.841 Beginning Tap 2 s.h.
137.851 Beginning Jazz 2 s.h.
137.861 Beginning Modern Dance 2 s.h.
137.871 Beginning Contemporary I 2 s.h.
137.881 Beginning Tap 2 s.h.
137.891 Beginning Jazz 2 s.h.
137.901 Beginning Modern Dance 2 s.h.
137.911 Beginning Contemporary I 2 s.h.
137.921 Beginning Tap 2 s.h.
137.931 Beginning Jazz 2 s.h.
137.941 Beginning Modern Dance 2 s.h.
137.951 Beginning Contemporary I 2 s.h.
137.961 Beginning Tap 2 s.h.
137.971 Beginning Jazz 2 s.h.
137.981 Beginning Modern Dance 2 s.h.
137.991 Beginning Contemporary I 2 s.h.
137.101 Beginning Tap 2 s.h.
137.102 Beginning Jazz 2 s.h.
137.103 Beginning Modern Dance 2 s.h.
137.104 Beginning Contemporary I 2 s.h.
Courses

Primaryy for Undergraduates

Notes: M.E. and M.S. may be taken in either order or they may be taken simultaneously.

10.00 Cooperative Education Internship 3.0-6.0

10.01 Principles of Microeconomics 4.0-4.5

12.00 Microeconomic Theory and Policy 3.0

10.06 Research Seminar 1.0-3.0

10.03 Macroeconomics 3.0-4.0

10.05 Mathematical Economics 3.0

10.01 Labor Economics 3.5-4.0

10.17 Money, Banking, and Financial Agnecy 4.0

11.10 Principles of the Government Senior Seminar 1.0-3.0

11.02 International Economics 3.0

11.09 Economic Growth and Development 3.0

11.11 Environmental and Natural Resource Economics 3.0

11.04 Macroeconomics 3.0-4.0

11.01 Microeconomics 4.0-4.5

11.06 Research Seminar 1.0-3.0

11.05 Mathematical Economics 3.0

11.02 Labor Economics 3.5-4.0

11.17 Money, Banking, and Financial Agency 4.0

11.10 Principles of Government Senior Seminar 1.0-3.0

11.02 International Economics 3.0

11.09 Economic Growth and Development 3.0

11.11 Environmental and Natural Resource Economics 3.0

11.04 Macroeconomics 3.0-4.0

11.01 Microeconomics 4.0-4.5

11.06 Research Seminar 1.0-3.0

11.05 Mathematical Economics 3.0

11.02 Labor Economics 3.5-4.0

11.17 Money, Banking, and Financial Agency 4.0

11.10 Principles of Government Senior Seminar 1.0-3.0

11.02 International Economics 3.0

11.09 Economic Growth and Development 3.0

11.11 Environmental and Natural Resource Economics 3.0

11.04 Macroeconomics 3.0-4.0

11.01 Microeconomics 4.0-4.5

11.06 Research Seminar 1.0-3.0

11.05 Mathematical Economics 3.0
60.121 Econometrics 3 s.h.
Classical linear regression models, multiple regression, hypothesis testing, model specification, model diagnostics, and model selection. Machine learning methods. Prerequisites: MATH 221.03 or equivalent.

60.187 Introduction to Mathematical Economics 3 s.h.
Mathematical foundations of microeconomics, linear algebra, probability, decision theory. Prerequisites: MATH 221.03 or equivalent.

60.188 Topics in Economics 3 s.h.
Course of instructor required.

For Advanced Undergraduates
60.197 Senior Seminar 3 s.h.
Course of instructor required.

60.198 Senior Thesis in Economics 3 s.h.
Course of instructor required.

60.199 Reading and Independent Study in Economics 3 s.h.
Course of instructor required.

60.200 Mathematics for Economists I 3 s.h.
Topics include analysis, linear algebra, and optimization with applications to microeconomics and macroeconomics. Prerequisites: MATH 221.03 or equivalent.

60.201 Mathematics for Economists II 3 s.h.
Introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; introduction to set theory, equivalence relations, and topology; 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introduction to set theory, equivalen...
the opportunity to learn about and acquire methods for understanding literary theory, interpreting literature, and the craft of writing fiction, and nonfiction. 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 English faculty is committed to expanding the traditional curriculum. For example, faculty members devote their attention to the literature of non-Western cultures. Some teach and write about literature and culture, supplementing the use of literary texts with paintings, photography, music, folklore, film, video, popular literature, and significant texts from many areas, including history, philosophy, psychology, sociology, and linguistics. The department has a strong creative writing program.

Although most students in the Ph.D. program are preparing for careers as teachers and scholars and most of the M.A. and A.B.A. programs are preparing for these and other writing-related professions, 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 now are writing for advertising firms, newspapers, and book publishers; teaching in primary and secondary schools; practicing law and medicine; working in business and industry; and participating in community programs and public service. Each academic program is arranged to meet students' individual needs and objectives.

Undergraduate Programs

The major in English gives students a solid core of interpretative, analytical, and writing skills rather than a uniform view of any particular literary tradition or theory. The department's goal is to offer an undergraduate program designed to encourage students to develop essential reasoning and communicative 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 taken in residence and at least 18 must be taken at The University of Iowa.

In fulfilling the above requirements, English majors may complete at least:

3 semester hours in language courses;
3 semester hours in courses in which no more than two authors are studied;
3-4 semester hours in literature and culture courses; and
3 semester hours in cultural study courses.

These requirements apply to all students who desire to take English majors after the close of the spring 1996 semester. The Schedule of Courses for each semester specifies which English department courses fit into the above categories. The requirement of at least 9 semester hours includes literature written before 1800 may be satisfied by courses that also satisfy other requirements of the major. Only 9 semester hours of creative writing courses may be applied toward the 33 semester-hour total for the major.

Students interested in an English major should consult the director of undergraduate studies in the English department office. The Handbook for the Home English Major offers a more detailed view of the requirements, programs, and procedures for the English major. It is available from the director of undergraduate studies.

General Education Requirement in Humanities for English Majors

English majors may take 403.1: The Interpretation of Literature plus 6 more semester hours of approved humanities courses or they may take 9 semester hours of approved courses.

No BC course can be counted toward the 33 semester hours required for the English major.

Honors

The English major with honors gives talented students the opportunity to undertake an honors course of study through special courses and independent study. Each year the department offers four honors presentations covering a wide range of historical areas and topics. Students who wish to earn a degree with honors have two options. They may take:

three presentations during the junior and senior years, and then write the three essays written as senior papers and, with an introduction, present their thesis during the honors project; or

the equivalent of two presentations in the junior year, then in the senior year, write an honors thesis approved by the supervision of a faculty member.

A creative thesis is possible under the second option, but only with permission of the Writers' Workshop.

Students interested in more information should contact the chair or any member of the honors committee. The names of the committee members and their office hours are available in the English department office. A handbook, Guidelines and Procedures, which describes both the options for the final project, in greater detail and specific deadlines for turning in the prospectus and the final honors project, also is available in the English office.

Minor

Students seeking a minor in English must first complete 403.1: The Interpretation of Literature. Since 403.1 counts toward the General

Education Requirements in humanities, that requirement may be satisfied by a minimum of 6 additional semester hours of course work selected from approved offerings in the humanities.

The minor in English requires 15 semester hours of course work in Department of English courses, with a grade-point average of 2.00. At least 12 of the 15 semester hours must be taken on campus, in English courses (300, 400, and 500 courses). Course design for BC do not count toward the minor in English. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work.

No course in the minor may be taken pass/moist.

The minor is first officially acknowledged and recorded only after the student has completed the application for graduation.

Creative Writing

Many undergraduates come to The University of Iowa because of the excellence of its creative writing program. With the consent of its 10 full-time, and several visiting faculty, our students may elect to take the creative writing courses in this program. These are 302.3: Creative Writing, 401.3: Fiction Writing, and 402.3: Poetry Writing. Admission to the undergraduate workshops in fiction and poetry (302.3) and (401.3-402.3) Undergraduate Writers' Workshop: Fiction and 401.3-402.3 Undergraduate Writers' Workshop: Poetry requires prior consent of the director of the workshop. Students who wish to take part in these workshops must meet minimum standards of their poetry or fiction to the Writers' Workshop no earlier than a week before registration and no later than the last day of registration.

English and Education

The department offers a flexible undergraduate program for students planning to teach English in elementary and secondary schools. Students who complete this program satisfy the requirements for a general major in English and for teaching certification.

Students who wish to be certified to teach English in Iowa secondary schools should select courses that fulfill the state guidelines for English teachers in grades 7-12.

Literary Studies for students planning to teach English should emphasize a range of close reading experiences in different kinds of literature (e.g., literature of the ancient world, Shakespeare, British literature of the nineteenth and twentieth centuries, American literature, literature for children, literature of African American culture, literature by women, fiction literature) as well as a variety of methods for exploring a literary text.

Students planning courses that will help them in their first teaching experiences should remember that they will have to work with students with wide variation in the abilities to understand and express themselves in English. They will need advanced training in approaches to teaching writing and in writing. Nonfiction, poetry, and
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 more exposure to graduate study before deciding whether to continue toward a Ph.D. or to move to a career 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 must participate in the community of the department and must 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 modern sensitivity to verbal 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 half of the course work toward the degree, may be chosen from graduate course in English and American literature. The program’s flexibility enables students, consulting closely with their advisors, to select the plan of study to their interests. Depending on whether the student takes an examination or writes a thesis, the program requires either 30 or 33 semester hours of graduate credit. At least 24 of these hours must be numbered 200 or above.

Thesis or Comprehensive Examination

The thesis is an original contribution of new or important research in the field of scholarly inquiry. It is a substantial piece of work, which may be a literary analysis, a sociological study, or an extensive comparative study. The thesis is based on a comprehensive examination of the literature of the field. The student must have completed a substantial part of the coursework before beginning the thesis. The thesis must be submitted in the form of a thesis proposal, and the chair of the department must approve the proposal.

The comprehensive examination is a written examination in the field of the student’s major. It is designed to test the student’s knowledge of the major field and to determine the student’s readiness to undertake the thesis. The examination is given in the final term of the student’s program.

The M.A. in literary studies is a terminal degree program, and students are not required to take the comprehensive examination or write a thesis. However, students who wish to continue their studies beyond the M.A. degree may be admitted to the Ph.D. program in literary studies.

Doctor of Philosophy

The Ph.D. program in literary studies is designed to provide advanced training and research experience in the field of literary studies. The program is structured to prepare students for careers in teaching, research, and higher education. The program requires a minimum of 60 credit hours, including coursework, research, and dissertation. The program is divided into three parts: the dissertation, the written examination, and the oral examination.

The dissertation is an original piece of research that makes an original contribution to the field of literary studies. The dissertation is written under the supervision of a faculty advisor and is submitted for examination by a committee of three faculty members.

The written examination is a comprehensive examination of the field of the student’s major. The examination is based on a survey of the literature of the field and is designed to test the student’s knowledge of the major field. The examination is given in the final term of the student’s program.

The oral examination is a formal presentation of the student’s dissertation and a defense of the dissertation. The examination is given in the final term of the student’s program.

The Ph.D. program in literary studies is a terminal degree program, and students are not required to take the written examination or write a dissertation. However, students who wish to continue their studies beyond the Ph.D. degree may be admitted to the postdoctoral program in literary studies.
three seminars taken at The University of Iowa;

a comprehensive examination that consists of the following: written responses to six questions in a period of three hours; and

an oral American literature exam in a special examination, presentation of an "examen paper," and

a subsequent oral examination;

dissertation, usually a scholarly work (in

rare cases and with special permission, it may be a novel or a collection of poems or short

stories); and

a final examination in defense of the
dissertation.

All doctoral candidates are encouraged to gain

teaching experience, preferably in the College of Liberal Arts programs in rhetoric and in the

Interdisciplinary General Education Requirement.

Application forms and a complete description of the program are available from the graduate

secretary of the department.

Financial Aid

Aid is available to graduate students in the form of scholarships, fellowships, and teaching and

research assistantships. It is awarded on a competitive basis. Since sources are limited, usually

fewer than half of new doctoral students receive aid. Many, but not all, advanced

graduate 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 admission the following academic

year. Forms are available from the English department and the University's Office of Admissions.

Admission

Admission requirements are stated in Special

Requirements and Information/Graduate Admissions, which is available from the English

department graduate office.

Writing Programs

For the past 50 years, The University of Iowa has been known as one of the leading centers for

creative writing in the United States. It has been the site of several major literary events, including

the Iowa Review, an annual literary magazine published by the graduate students in the

department.

General Education

Literature

Students can satisfy the General Education Requirement in the humanities by taking BC-1

The Interpretation of Literature and two other approved humanities courses. English majors need not take BC-1, but must satisfy the

requirement by taking 5 semester hours of approved humanities courses.

BC-1 (or its equivalent by examination or transfer) is a prerequisite for the other courses

(BC-2 through BC-15) and must be taken first. The pass/unsatisfactory option is available only for students in the College of Nursing and

Engineering with the consent of the student’s

advisor and the instructor. Students must successfully complete the人文 requirement

before they may take BC-2 courses.

BC-2 Biblical and Classical Literature

Survey of the primary religious and moral traditions of the ancient

Near East, Egypt, Greece, and Rome from the beginnings to the

Common Era.

BC-3 Medieval and Renaissance Literature

English and Greek or Latin prose and verse from the 5th to the

16th centuries in their historical and cultural contexts.

BC-4 Epic and Tragic Literature

Survey of the principal works of Homer, Vergil, and Shakespeare;

triumphs and tragedies of Greek and Latin epic and tragic

literature.

BC-5 The Poets of Classical India

Selected works of the greater authors of Sanskrit literature and

indian literature from the 5th century B.C. to the 15th century.

BC-6 Lyric Poetry

Selected lyric poems by a representative variety of poets,

authors, and schools, and their historical contexts.

BC-7 American Literature

Major works of American literature from the colonial period to

the present.

BC-8 Cosmic and Tragic Literature

Selected works of great cosmic and tragic literature.

BC-9 World Literature

A survey of literature from selected cultures from around the

world.

BC-10 Business and Corporate Writing

A course designed to provide students with the skills and

knowledge necessary for effective writing in the business

environment.

BC-11 Women and Literature

A survey of the major authors and themes throughout history,

along with the major works of selected authors.

Primarily for Undergraduates

English department courses are open to all

undergraduates who have satisfied the required

requirements. In most cases, undergraduates

should complete one or more departmental courses before taking 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.

BC-1 Poetry Books

BC-2 Fiction Books

BC-3 Poetry Readings

BC-4 Reading Series
Authors
8.227 Three African Writers
Same as 100, 100A, 100B
8.231 Chauncey
8.232 Speaker
8.233 Shakespeare
Same as 41.23.1
8.235 Milton
8.236 Selected Authors

Literary Theory and Criticism
8.261 History of Criticism: Plato to 1700
Same as 40.261, 49.261, 14.261.
8.262 History of Criticism: 1700-Present
Same as 40.262, 49.262.
8.263 Issues in Contemporary Literary Criticism
Same as 40.263.
8.265 Popular Criticism
Same as 111-114.
8.266 Classical Rhetoric
Same as 24.266.
8.268 Medieval Rhetoric
Same as 24.268.
8.272 Introduction to Contemporary Literary Theory
Same as 25.272.
8.284 Topics in Modern Aesthetics
Same as 40.284, 49.284.
8.306 Studies in Language Theory
Same as 40.306.
8.340 Studies in American Literature
8.352 Literary Genre and Modes
8.354 Philosophy of Literature

Special Topics
8.228 Blacks in the Literature of Black and White Authors
8.238 American Indian Literature
8.259 Law and Ceremony in Literature
Same as 11.259.
8.313 Modern Studies
8.353 American Studies
8.377 Studies in Socio
8.310 Studies in Irish Literature
8.319 Issues in Nineteenth-Century Literature
8.320 Issues in Seventeenth-Century Literature
8.321 Issues in Eighteenth-Century Literature
8.325 Feminist Studies
8.349 Issues in Eighteenth- and Nineteenth-Century Literature
8.373 European Renaissance
8.319 Issues in Renaissance Literature

Semesters
Admitted work in literary theory, criticism, and history; concentration varies from semester to semester. Consent of instructor required.
8.402 Seminar: Medieval Literature
Same as 40.402.
8.404 Seminar: Seventeenth-Century Literature
8.407 Seminar: Renaissance Literature
8.411 Seminar: Shakespeare
8.414 Seminar: Seventeenth-Century Literature
8.411 Seminar: Romanticism and Victorian Literature
8.413 Seminar: English Reminiscence
8.414 Seminar: Victorian Literature
8.414 Seminar: Twentieth-Century British Literature
8.415 Seminar: Twentieth-Century British and American Literature
8.420 Seminar: British Poetry
8.427 Seminar: Eighteenth- and Twentieth-Century British Literature
8.421 Seminar: Nineteenth-Century American Literature
8.423 Seminar: Short Fiction
8.425 Seminar: Post-Colonial Studies
8.428 Seminar: American Writers of the Twentieth Century
8.428 Seminar: British Literature
8.450 Seminar: Renaissance and Literary Theory
Same as 40.450.
8.461 Seminar: Problems in Aesthetics and Literary Theory
8.487 Seminar: Shakespeare and Literary Theory
Same as 40.487.
8.494 Seminar: Modern and Contemporary Poetry
8.496 Seminar: Drama, Literature, and Culture
8.501 Seminar: American Literature
8.505 Seminar: American and British Literature
8.511 Seminar: British Literature
8.525 Seminar: American Literature
8.535 Seminar: American Literature
8.538 Seminar: American Literature
8.539 Seminar: American and British Literature

Independent Study
8.539 Advanced Studies in an Author
8.555 Advanced Studies in a Literary Period
8.613 Advanced Review in a Literary Genre
8.515 Advanced Studies in a Literary Genre
8.525 Advanced Studies in a Literary Period
8.535 Advanced Studies in a Literary Theme
8.545 Advanced Studies in an Interdisciplinary Subject
8.575 Thinks in Literary Studies
8.590 Special Project for Graduate Students
8.595 Ph.D. Thesis

Linguistics and Language
8.1290 Introduction to Linguistics
Same as 150.1290.
8.1318 University of English Process and Past
Third edition of "The Story of English," English to students in this country and around the world, beginning of different societies; by comparison with lives of people.
8.1320 Historical and Comparative Linguistics
Same as 150.1320.
8.1331 History of the English Language
Same as 150.1331.
8.1332 University Old English
Same as 150.1332.
8.1341 Modern English Grammar
Same as 150.1341.
8.1353 Medieval French
Same as 150.1353.
Professional

Although the following courses are open to all graduate students, their primary purpose is to offer theoretical and practical training to those who plan to teach.

WR-1 Approaches to Teaching Literature
Same as 761.30
3.0 a.

WR-182 Language and Learning
Same as 176, 701.30
3.0 a.

WR-190 Methods English
Same as 761.15
3.0 a.

WR-199 Literature for Adolescents
Same as 761.10
3.0 a.

WR-215 Seminar: Remote Developments in Literature/Adolescent
Same as 761.20
3.0 a.

WR-230 Teaching in a Reading Lab
Same as 761.70
3.0 a.

WR-240 MA Seminar: English Education
Same as 761.90
3.0 a.

WR-242 PhD Seminar: English Education
Same as 761.90
3.0 a.

WR-450 Colloquium: Teaching Methods
Same as 761.90
15.0 a.

Nonfiction Writing

The following courses may be repeated: BW-10, BW-100, BW-121, BW-150, BW-205, and BW-350. Others may be repeated with consent of the instructor and either the director of undergraduate studies or the director of graduate studies.

PRACTICE IN WRITING

Jr./senior practice in elements of composition and limits of expression.

WR-100 Exploratory Writing 3.0 a.

WR-15 Technical and Scientific Writing 3.0 a.

WR-100 Composition for Writers 3.0 a.

WR-100 Greek and Latin for Vocabulary Building Same as 4610 3.0 a.

WR-100 Grammar and Style 3.0 a.

WR-104 Personal Writing 3.0 a.

WR-105 Advanced Writing 3.0 a.

WR-112 Writing for the Sciences 3.0 a.

WR-113 Writing for Business and Industry 3.0 a.

WR-115 Writing for the Arts 3.0 a.

WR-130 Extended Free News/Janitorial Writing 3.0 a.

WR-171 Forms of Writing 3.0 a.

WR-190 Undergraduate Essay Workshop 3.0 a.

WR-200 Advanced Writing 3.0 a.

WR-218 Writing Workshop for Teachers 3.0 a.

WR-230 Critical Writing 3.0 a.

WR-350 Essay Writing Workshop 3.0 a.

THEORY AND PRACTICE OF WRITING

The role and analysis of motivation, writing combined with practical experimentation in writing for people who intend to practice, criticize, and/or teach composition writing.

WR-137 Techniques of the Essay 3.0 a.

WR-138 Art of the Essay 3.0 a.

WR-144 Approaches to Teaching Writing 3.0 a.

WR-152 Theories of Style 3.0 a.


WR-310 British Literature: Theories of Writing 3.0 a.

WR-431 Special Topics in the Teaching of Writing 3.0 a.

WR-613 Research on Writing 3.0 a.

WR-617 Vicarious of the Classroom 3.0 a.

WR-619 Art of the Essay 3.0 a.

WR-620 Forms of Writing 3.0 a.

WR-630 Teaching in a Writing Lab Same as 761.70 3.0 a.

WR-632 Seminar: Tendencies of Writing 3.0 a.

INDEPENDENT STUDY

WR-150 Graduate Seminar 3.0 a.

WR-155 Graduate Seminar in Nonfiction Writing 3.0 a.

WR-160 Special Project in Nonfiction Writing 3.0 a.

WR-170 Special Project in Teaching of Writing 3.0 a.

WR-260 MLA Seminar: Nonfiction Writing 3.0 a.

WR-360 MLA Seminar: Nonfiction Writing 3.0 a.

WR-470 MLA Seminar: Nonfiction Writing 3.0 a.

WR-472 MLA Seminar: Nonfiction Writing 3.0 a.

WR-360 MLA Seminar: Nonfiction Writing 3.0 a.

WR-472 MLA Seminar: Nonfiction Writing 3.0 a.

Creative Writing

All may be repeated.

GENERAL INTEREST

Practice in elements and forms of creative writing.

WR-212 Creative Writing 3.0 a.

WR-214 Introduction to Translation Studies Same as 4610 3.0 a.

WR-190 History of Theory of Translation Same as 4610 3.0 a.

WR-215 Fiction Writing 3.0 a.

WR-216 Poetry Writing 3.0 a.

WR-217 Advanced Fiction Writing 3.0 a.

WR-218 Advanced Fiction Writing II 3.0 a.

WORKSHOPS AND SUMMERS

Open only to Writers' Workshop students or to others with consent of the instructor.

WR-198 Undergraduate Writers Workshop: Fiction 3.0 a.

WR-220 Undergraduate Writers Workshop: Poetry 3.0 a.

WR-223 Undergraduate Writers Workshop: Theory 3.0 a.

WR-225 Translation Workshop Same as 4610 3.0 a.

WR-242 Translation Workshop 3.0 a.

WR-370 Forms of Fiction 3.0 a.

WR-375 Forms of Poetry 3.0 a.

WR-470 Seminar: Problems in Modern Fiction 3.0 a.

WR-475 Seminar: Problems in Modern Poetry 3.0 a.

INDEPENDENT STUDY

WR-150 Graduate Project in Creative Writing 3.0 a.

WR-355 Graduate Project in Creative Writing 3.0 a.

WR-995 MLA Thesis 3.0 a.
Exercise science majors must complete the following core courses plus 17 semester hours in their elected subdisciplines.

- 4.14 Principles of Chemistry II 3 s.h.
- 77-143 Introduction to Statistical Methods 3 s.h.
- or 221-102 Introduction to Statistical Methods 3 s.h.
- or 221-101 Biostatistics 3 s.h.
- 222-7 Introduction to Computing with FORTRAN 3 s.h.
- or 467-70 Computer Analysis 3 s.h.
- or 57-17 Computers in Engineering 3 s.h.
- 29-11 College Physics 4 s.h.
- or 29-11 College Physics 4 s.h.
- or 29-17 Introductory Physics I 3 s.h.
- or 29-17 Introductory Physics I 3 s.h.
- or 29-12 College Physics 4 s.h.
- or 29-18 Introductory Physics II 4 s.h.
- 2-3 Principles of Animal Biology 5 s.h.
- 72-130 Human Physiology 4 s.h.
- or 72-150 Intermediate Physiology 4 s.h.

The following courses should be completed prior to the senior year.

- 27-141 Exercise Physiology 3 s.h.
- 27-142 Exercise Physiology Laboratory 1 s.h.
- 27-150 Exercise Science Seminar 3 s.h.
- 27-151 Gross Anatomy Lab for Exercise Science 2 s.h.
- 27-160 Motor Control 4 s.h.
- 27-169 Biomechanics of Human Motion 4 s.h.

Subdisciplines

Elective courses for the 17 semester hours in the subdisciplines in exercise science are listed below.

ANATOMY
- 2-112 Cell, Tissue, and Organ Biology 5 s.h.
- 27-153 Advanced Anatomy and Physiology 2 s.h.
- 27-155 Skeletal Muscle Biology 3 s.h.
- 27-157 The Nervous System of Human Motion 3 s.h.
- 27-194 Exercise Science Seminar 2 s.h.
- 27-223 Laboratory in Advanced Anatomy 6 s.h.

Preprofessional students should take the following courses in place of 27-253 Laboratory in Advanced Anatomy.
- 27-150 Introductory Biotechnology 2 s.h.
- 27-152 Biotechnology Laboratory 2 s.h.

BIOCHEMISTRY
- 22N-26 Calculus II 4 s.h.
- 22N-36 Engineering Calculus II 4 s.h.
- 27-155 Skeletal Muscle Biology 3 s.h.

27-157 The Oxygen Transport of Human Motion 3 s.h.
- 27-195 Exercise Science Seminar 3 s.h.
- 27-196 Exercise Science Seminar 3 s.h.
- 57-100 Osteoanalysis 3 s.h.
- 57-100 Mechanics of Deformable Bodies 3 s.h.

GROSS PHYSIOLOGY
- 27-160 Introductory Biophysics 2 s.h.
- 27-152 Biophysics Laboratory 1 s.h.
- 40-122 Organic Chemistry I 4 s.h.
- 40-123 Organic Chemistry II 4 s.h.
- 27-155 Skeletal Muscle Biology 3 s.h.
- 27-156 Exercise Science Seminar 2 s.h.
- 90-110 Biotechnology 3 s.h.
- 90-110 Introductory Biophysics 4 s.h.
- 90-110 Biotechnology and Molecular Biology I 4 s.h.
- 90-130 Biophysics and Molecular Biology II 4 s.h.

MOTOR CONTROL
- 2-40 Biology of the Brain 3 s.h.
- 2-112 Cell, Tissue, and Organ Biology 5 s.h.
- 2-163 Animal Behavior 4 s.h.
- 2-155 Cell Physiology 4 s.h.
- 2-160 Endocrinology, Neuroendocrinology 3 s.h.
- 2-161 Neuroepistemology 3 s.h.
- 2-155 Skeletal Muscle Biology 3 s.h.
- 2-157 The Nervous System of Human Motion 3 s.h.
- 27-150 Exercise Science Seminar 3 s.h.
- 31-120 Physiological Psychology and Psychobiology 3 s.h.

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION

The B.S. degree in physical education is offered as a general major or as a specialization in athletic training.

GENERAL MAJOR

Students who elect the general major in physical education must complete the following courses:

- 27-53 Human Anatomy 3 s.h.
- 27-56 First Aid and CPR 2 s.h.
- 27-111 Human Growth and Motor Development 3 s.h.
- 28-75 Contemporary Issues in Health Promotion 3 s.h.
- 27-160 Biomechanics of Physical Education 3 s.h.
- 27-168 Motor Learning and Motor Control 3 s.h.
- 27-149 Exercise Physiology for Athletes 3 s.h.
- 28-82 Psycho-Social Dimensions of Physical Activity 3 s.h.
- 28-100 Physical Education for the Handicapped 3 s.h.
- 27-197 Measurement and Evaluation in Physical Education 3 s.h.
- 72-120 Human Physiology 4 s.h.

ATHLETIC TRAINING PROGRAM

The athletic training program provides students with a professional education leading to the certification program in athletic training. Employment opportunities for graduates include serving as health care professionals for sport medicine clinics and 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 prior to enrollment in the University of Iowa should contact the College of Liberal Arts and Sciences Office of Athletic Training.

The following courses are required.

- 27-107/157 Biostatistics 3 s.h.
- 27-140/141 Exercise Physiology 3 s.h.
- 27-150/151 Anatomy and Histology 3 s.h.

Program requirements include the following.

- 27-171 Administration of Athletic Training Programs 3 s.h.
- 27-172 Clinical Science I 1 s.h.
- 27-173 Clinical Science II 1 s.h.
- 27-183 Clinical Science III 3 s.h.
- 27-183 Clinical Science IV 3 s.h.
- 27-184 Seminar in Athletic Training 5 s.h.
- 27-185 Practicum in EMR for Athletic Training 3 s.h.
- 27-253 Laboratory in Advanced Anatomy 6 s.h.
- 72-199 Counseling for Allied Health 3 s.h.
- 72-120 Drugs: Their Nature, Action, and Use 3 s.h.
- 104-100 Introductory Nutrition 1 s.h.

- Participation is limited to students formally admitted into the athletic training program.

Graduate Programs

Master of Science without Thesis

The program leading to the M.S. without thesis is a limited postgraduate study for athletic trainers and students in the completed physician assistant-exercise science program.
Athletic Training Emphasis

The nonthesis program in athletic training is designed as an advanced area of study in clinical evaluation and research for the clinician 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 hands-on case-based approach to sports medicine, professional preparation, and sports epidemiology.

The following undergraduate course work (total of 32 semester hours) is required background for the nonthesis M.S. program in athletic training:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cade 101</td>
<td>Human Physiology</td>
<td>3</td>
</tr>
<tr>
<td>ATC 108</td>
<td>Athletic Training Core: Prevention</td>
<td>3</td>
</tr>
<tr>
<td>ATC 109</td>
<td>Evaluation &amp; Remediation</td>
<td>3</td>
</tr>
<tr>
<td>ATC 110</td>
<td>Rehabilitation</td>
<td>3</td>
</tr>
<tr>
<td>ATC 111</td>
<td>Administration</td>
<td>2</td>
</tr>
<tr>
<td>ATC 201</td>
<td>Exercise Science Core: Neural Control</td>
<td>3</td>
</tr>
<tr>
<td>ATC 202</td>
<td>Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>ATC 203</td>
<td>Biomechanics</td>
<td>3</td>
</tr>
<tr>
<td>ATC 204</td>
<td>Electives in Related Areas</td>
<td>3</td>
</tr>
</tbody>
</table>

Current emergency certifications NATA certification or equivalent

COURSE REQUIREMENTS

For the M.S. without thesis, students must complete 30 semester hours, at least 20 of which must be in exercise science, including 27:141 Exercise Physiology.

The following courses are required for the M.S. without thesis in athletic training:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>27:141</td>
<td>Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>27:142</td>
<td>Exercise Physiology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>27:153</td>
<td>Advanced Anatomy and Kinesiology</td>
<td>2</td>
</tr>
<tr>
<td>27:155</td>
<td>Skeletal Muscle Biology</td>
<td>3</td>
</tr>
<tr>
<td>27:157</td>
<td>The Qualitative Analysis of Human Motion</td>
<td>3</td>
</tr>
<tr>
<td>27:160</td>
<td>Kinesiological Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

Clinical Research Tools

Two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>71:43</td>
<td>Introduction to Statistical Methods</td>
<td>1</td>
</tr>
<tr>
<td>65:161</td>
<td>Introduction to Bioinformatics</td>
<td>3</td>
</tr>
</tbody>
</table>

An approved data processing or biological science course in computer science | 2-4 |

Athletic Training

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>27:360</td>
<td>Non-Thesis Seminar</td>
<td>3</td>
</tr>
<tr>
<td>27:184</td>
<td>Senior in Athletic Training (3 registrations)</td>
<td>6</td>
</tr>
</tbody>
</table>

Doctor of Philosophy

Admission

Admissions to the Ph.D. program is based on the applicant's grade-point average on work completed for the M.S. degree, and their score on the Graduate Record Examination (GRE) General Test. To be considered for admission, applicants must have earned a grade-point average of 3.0 or higher on graduate work. For admission to the Ph.D. program in exercise science, applicants must be graduates of an approved pre-professional program in physical therapy and must hold a master's degree, which must be in physical therapy. Deadlines for application are October 15, March 15, and May 15; admission 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 programs in the first, and an in-depth knowledge in at least one area of specialization in exercise science. Specialization areas offered include 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 M.S. or B.S. That must include the completion of a dissertation on a problem in the area of specialization. It is expected that all appropriate manuscripts of the dissertation will be submitted to an approved refereed professional journal for publication.

Many of the courses in the specialization areas are offered by departments other than the Department of Exercise Science. Professors from these departments frequently serve on comprehensive examination committees and on the defense of the candidate's proposed problem. They also participate in the final oral examination to which the candidate defends the dissertation.

GENERAL REQUIREMENTS

Ph.D. candidates must fulfill the following requirements.

Completion of the M.S. or M.A. with a minimum of 10 semester hours of independent research exclusive of the thesis requirement (provides students with additional opportunities to conduct research, the results of which may be submitted for publication).

At least 72 semester hours of graduate credits beyond the B.A. (typically about 10 semester hours)

COURSE REQUIREMENTS

Two approved courses in statistics.

One approved computer science course.

27:360 Research (minimum of 10 s.h.)
27/202 Practicum in College Teaching - maximum of 3 hrs.
27/405 Thesis: Ph.D. (12 hrs.)

**SCIENTIFIC AREA COURSES**

In order to ensure that exercise science doctoral candidates obtain a minimal 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 below. They must be course levels 300 and above. Students specializing in sports medicine must select one course from each of the four areas below. They must be course levels 300 and above. Students specializing in kinesiology and research must select two courses from each of the four areas below. They must be course levels 300 and above. Students specializing in rehabilitation must select two courses from each of the four areas below. They must be course levels 300 and above.

**Anatomy**
- Anatomy I (3 hrs.)
- Anatomy II (3 hrs.)

**Biomechanics**
- Biomechanics I (3 hrs.)
- Biomechanics II (3 hrs.)

**Exercise Physiology**
- Exercise Physiology I (3 hrs.)
- Exercise Physiology II (3 hrs.)

**Kinesiology**
- Kinesiology I (3 hrs.)
- Kinesiology II (3 hrs.)

**Research**
- Research Methods I (3 hrs.)
- Research Methods II (3 hrs.)

**Sport Management**
- Sport Management I (3 hrs.)
- Sport Management II (3 hrs.)

**Specialization**
- Specialization I (3 hrs.)
- Specialization II (3 hrs.)

**Motor Control**
- Motor Control I (3 hrs.)
- Motor Control II (3 hrs.)

**Special Techniques**
- Special Techniques I (3 hrs.)
- Special Techniques II (3 hrs.)

**Practicum**
- Practicum I (3 hrs.)
- Practicum II (3 hrs.)

**Thesis**
- Thesis I (3 hrs.)
- Thesis II (3 hrs.)

**Comprehensive Examinations**
- Comprehensive Examinations I (3 hrs.)
- Comprehensive Examinations II (3 hrs.)

**Electives**
- Electives I (3 hrs.)
- Electives II (3 hrs.)

**Total**
- Total (36 hrs.)

**Facilities**
- Research Laboratories: Kinesiology, Biomechanics, Exercise Physiology, Motor Control
- Clinic: Sports Medicine
- Classroom: Kinesiology, Biomechanics, Exercise Physiology, Motor Control

**Courses**
- Primary Undergraduate Courses
- Secondary Undergraduate Courses
- Practicum Courses
- Thesis Courses

**The scientific area course requirements listed in the course major.**

**General Core**
- 22C:100 Introduction to Computing with Fortran (or equivalent) 3 hrs.
- 30/273 Research Data Management 3 hrs.
- 77/248 Data Processing 3 hrs.
- 77/405 Thesis: Ph.D. 12 hrs.
- 101/214 Advanced Seminar in Physical Therapy 3 hrs.
- 101/580 Teaching Practicum 3 hrs.

**Total**
- 23 hrs.

**Research**
- 27/213 Research 12 hrs.
- 101/284 Practicum in Research 12 hrs.
- 101/325 Independent Study 12 hrs.
- 101/327 Research in Therapeutics 12 hrs.

**Total**
- 10 hrs.

**Specialty Emphasis**
- Individual plans of study are developed jointly by the graduate student and faculty advisor.

**Course Requirements**
- Course requirements depend on the student's specific specialty area (orthopedics, ergonomics, musculoskeletal, neurorehabilitation).
For Undergraduates and Graduates

27.120 Stress Disorders: The Biological Basis for Understanding Anxiety, Depression, and Other Mental Health Problems 3.0 h
27.121 Biological Psychology 3.0 h
27.122 Psychological Disorders and Behavior 3.0 h
27.123 Neuropsychology 3.0 h
27.124 Social Psychology 3.0 h
27.125 Cognitive Psychology 3.0 h
27.126 Personality and Individual Differences 3.0 h
27.127 Child Psychology 3.0 h
27.128 Psychological Assessment 3.0 h
27.129 Positive Psychology 3.0 h
27.130 Women's Mental Health 3.0 h
27.131 Men's Mental Health 3.0 h
27.132 Mental Health Care Systems 3.0 h
27.133 Mental Health Services and Systems 3.0 h
27.134 Mental Health Policy and Advocacy 3.0 h
27.135 Medical Sociology 3.0 h
27.136 Sociocultural Perspectives on Mental Health 3.0 h
27.137 Cross Cultural Psychology 3.0 h
27.138 Psychological Aspects of Health 3.0 h
27.139 Psychology of Aging 3.0 h
27.140 Psychology of Work and Organizations 3.0 h
27.141 Health Psychology 3.0 h
27.142 Environmental Psychology 3.0 h
27.143 Evolutionary Psychology 3.0 h
27.144 Psychology and Religion 3.0 h
27.145 Research Methods in Psychology 3.0 h
27.146 Introduction to Research Methods 3.0 h
27.147 Advanced Research Methods 3.0 h
27.148 Research Design and Statistical Methods 3.0 h
27.149 Data Analysis in Psychology 3.0 h
27.150 Ethics in Research 3.0 h
27.151 Professional Ethics and Issues in Research 3.0 h
27.152 Independent Study 3.0 h
27.153 Internship 6.0 h

Undergraduate Programs

The department introduces students to the cultural context of France and Italy, providing 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 and Italian literature and civilization.

Students choose from a variety of programs for majors in French and Italian and electives for nonmajors with preprofessional linguistic skills. They are offered flexible means to meet the liberal arts General Education Requirement in foreign languages as an essential individual whole 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, comparative literature, or history as preparation for college-level teaching. Or they may continue other studies and fields with their major in French or Italian to prepare for challenging career opportunities in international government, business, finance, travel, or communications, where the knowledge of a foreign language is essential.

Bachelor of Arts in French

The undergraduate major in French may be completed with an emphasis on literature, civilization, teaching, or applied French. Courses taught in English do not count as credit toward a major in French until they are offered in French. These major courses are taught in French, and French language proficiency is expected of all students.

LITERATURE TRACK

The literature track is designed for students who are interested in French literature or in continuing the study of French literature with a minor in another area, such as English, comparative literature, cinema, or fine arts. It requires a minimum of 25 upper-level credit hours in French as follows.

1. 9-105/106 Second-Year Composition and Conversation 8.0 h
2. 9-111/112 Third-Year Composition 6.0 h
3. 9-130 French Conversation: Third Level 2.0 h
4. 9-136 French Conversation: Fourth Level 2.0 h
5. 9-175 Advanced French Pronunciation 2.0 h
6. 9-255 French Pronunciation 2.0 h

A minimum of 100-level courses in literature (at least two of which must be numbered above 100) plus a fifth 100-level course in a choice of literature, advanced language, or civilization, totaling 15 upper-level hours.

CIVILIZATION TRACK

The civilization track is designed for students interested in French history, politics, and culture and is recommended for those who want to undertake studies in French with a place in another area, such as history, political...
Bachelor of Arts in Italian

Requirements for the major in Italian total 28 semester hours, as follows:

- 18-111-12 Introduction to Italian Language and Literature 5 s.h.
- 18-111-12 Advanced Composition and Conversation 5 s.h.
- 18-115-16 Introduction to Modern Italian Literature 6 s.h.
- 18-115-20 Medieval and Renaissance Italian Literature 6 s.h.
- 18-115-20 A 100-level course taught in Italian 3 s.h.

Elementary and Secondary Teaching Certification in Italian

Italian majors interested in teaching in elementary and/or secondary schools must successfully complete the requirements for a major in Italian, including at least one 2 semester hour course in either 18-115 or 18-114, and must be admitted to the College of Education. Students must contact the College of Education, Department of Curriculum and Instruction for more information.

Students who plan to use their Italian major to teach at the elementary and/or secondary level must contact the College of Education concerning requirements. See the College of Education section of the Catalog.

Honors

The department participates in the University Honors Program. For more information about requirements for honors in French or Italian, contact the French or Italian Honors advisor.

Minor in French

The requirements for a minor in French are 15 semester hours with a minimum grade-point average of 2.00. Twelve of these must be taken at The University of Iowa courses numbered 18-115 or above. Courses numbered in the 180s, 190s, and 200s count toward the minor in French.

Minor in Italian

The requirements for a minor in Italian are 15 semester hours with a minimum grade-point average of 2.00. Twelve of these must be taken at The University of Iowa courses numbered 18-115 or above. Courses numbered in the 180s, 190s, and 200s count toward the minor in Italian.

Summer Program in France

The department sponsors a summer program in France for students enrolled in the three Year 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.

Certificate in Law, the program combines formal class work in language skills, courses in the culture and civilization of France, and visits to sites of cultural and historical interest. Students may earn 8 or 9 semester hours of credit in the program.

Summer Program in Quebec

The department participates in the Committee of Intercollegiate Cooperation (CIC) Summer French Program in Quebec at the Université de Laval. The CIC is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the "Cours deété" for non-degree-seeking students of the Université de Laval, the program is designed to offer qualified students the opportunity to increase their command of French in a French-speaking environment and to introduce them to the heritage and cultural traditions of a unique and vital segment of North American culture.

Foreign Language House

The French and Italian departments maintain close cooperation with the Modern Foreign Languages at the Modern Foreign Language House at Hillcrest Residence Hall. Presidents major in 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 comprehensive examination. The program must include 9-200 Advanced Grammar and Lexicology, 9-300 Comparative Literature, and at least four graduate-level (200 and above) literature courses. In addition to the comprehensive examination, the department requires a senior seminar course in the department. Teaching assistants in the department also must take 9-214 Preparation 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, of which 8

Because the B.G.S. degree program by definition allows for individualized academic planning, students are encouraged to apply for the B.G.S. program prior to or during the junior year.

Applicant:
Each plan of study submitted for approval must provide the following information:
(a) a description of academic goals. The bachelor's degree, with a clear statement of the reasons for pursuing the B.G.S. program in your department;
(b) a list of advanced-level course work already completed and a description of its relevance to the proposed plan of study; and
(c) an outline of advanced-level course work planned for all remaining semesters, noting how the courses relate to each other, to personal interests, and to the overall focus of the plan of study.

Each plan of study is approved by a committee that includes the coordinator, the faculty advisory committee, and the B.G.S. advisor. Review is held several times each semester.

If the committee does not grant approval, the plan of study may be returned to the student for revisions and resubmission at the next committee meeting. In some cases, the student may be referred to a more appropriate departmental major.

Students are required to follow the course approved in the plan of study. A limited number of substitutions may be allowed, but only if they are consistent with the area of study, intellectual focus in the approved plan of study, and if they are approved in advance by the B.G.S. advisor. Unauthorized substitutions may be decisive to elective course work.

Significant changes in the focus of a student's plan of study may require the resubmission and approval of a revised plan of study. The student's academic advisor determines whether the changes warrant a revised plan.

Forms and guidelines for preparing the plan of study are available from the general studies advisor in the Liberal Arts Office of Academic Programs. A list of review committee meeting times is available each semester.

B.G.S. Requirements
Students must earn a total of at least 124 semester hours or credit to graduate with a B.G.S. degree. They must complete a minimum of 20 semester hours or credit in the core area of the program, 15 of which must be advanced level course work. No more than 30 semester hours or credit 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 Requirements
Students must complete the College of Liberal Arts General Education Requirements, including two semesters of college-level foreign language or the equivalent. (See College of Liberal Arts introductory section for specific information.)

Advanced Course Work
Students must complete at least 36 semester hours of advanced course work at The University of Iowa. No more than 16 semester hours of advanced course work from one department may be counted toward this requirement. (However, students who earn more than 16 semester hours in advanced course work from one department, may count the total toward the 124 semester hours needed for graduation.)

Course taken to satisfy the General Education Requirements may not be counted toward the requirements of the advanced course work requirement.

Advanced course work typically is those numbered 100 and above. With approval of the Office of Academic Programs, courses numbered below 100 but 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 year/semester grading system 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 beyond the 36 semester hours.

Some study abroad advanced course work is considered as part of the B.G.S. requirements and college residence requirements. Students should check to ensure that the study is in residence with the B.G.S. advisor or the B.G.S. coordinator.

Advanced courses offered through the University of Iowa Global Education Service's carefully study toward the advanced course work requirement, but the College of Liberal Arts residence requirement must be met by other 100 level 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 intermediate course work, and both 100 and 200 level course work.

Students completing a B.G.S. degree may earn no more than 32 semester hours of credit toward the 124 required for graduation from courses taken at 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 polities regarding prerequisites, pass/fail, non-transferability, or academic standards apply to B.G.S. students.

Related Considerations
All courses numbered under the prefix 7 (College of Education) are considered to be in one department. All courses numbered with the prefix 6 (College of Business Administration) except 651 (statistics) is also considered 1 department in the College of Liberal Arts is considered to be in one department.

Advanced Courses Numbered below 100
The following courses are accepted as part of the 36 semester hours of advanced course work required under B.G.S. rules. 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 1986 are not considered advanced level course work. Some of the courses have prerequisites or require special permission signatures.

AMERICAN STUDIES
45-90 Seminar in American Cultural Studies 3 s.h.

ART AND ART HISTORY
1K-49 Advanced Painting 2.5 s.h.
1M-22 Undergraduate Drawing and Relief II 3 s.h.
1N-17 Undergraduate Sculpture Workshop 3 s.h.

ASIAN LANGUAGES AND LITERATURE
56-23 Senior-Year Seminar 3 s.h.
59-14 Non-Western Literary Traditions 3 s.h.

BIOLOGICAL SCIENCES
2B-1B 2-Biochemistry 2 s.h.
2T-17 (accepted as advanced course work only 3 Credit Towary also 2 a common)

CLASSICS
14-11 Second-Year Greek I 4 s.h.
14-15 Second-Year Greek II 4 s.h.
20-81 Age of Caesar 3 s.h.
20-83 Age of Augustus 3 s.h.

COMPARATIVE STUDIES
All courses numbered 556-60 and above All courses numbered 565-60 and above

COMPARATIVE LITERATURE
48-40 Major Tests in World Literature I 3 s.h.
48-41 Major Tests Of World Literature II 3 s.h.
48-60 Non-Western Literary Traditions 3 s.h.
48-95 Undergraduate Seminar 3 s.h.

COMPUTER SCIENCE
22-21 Algorithms and Data Structures 3 s.h.
22-23 Programming Language Concepts 3 s.h.
22-31 Digital Systems and Computers 3 s.h.
22-32 Introduction to Systems Software 3 s.h.
22-33 Computer Graphics 3 s.h.
students enroll in the program are encouraged to obtain a broad background in genetics, ranging from molecular to population 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 90-91 Biochemistry and Molecular Biology I, 2.215 Genetiks (same as 6.15, 25.9, 315) and either 7.171 Molecular Genetics or 12.181 Introduction to Molecular Biology I. In addition, they must earn a total of at least 10 semester hours of credit in molecular and microbial genetics, cell and developmental genetics, and quantitative and population genetics.

Every important course for the major is offered in the Department of Genetics. Students are encouraged to begin their work as quickly as possible. Research interests of the participating faculty include both cellular and environmental genetics. Students pursuing graduate degrees in genetics are encouraged to take a broad background in genetics, including courses in general genetics, molecular genetics, cytogenetics, and evolution. Students pursuing graduate degrees in genetics are encouraged to take a broad background in genetics, including courses in general genetics, molecular genetics, cytogenetics, and evolution. Students pursuing graduate degrees in genetics are encouraged to take a broad background in genetics, including courses in general genetics, molecular genetics, cytogenetics, and evolution. Students pursuing graduate degrees in genetics are encouraged to take a broad background in genetics, including courses in general genetics, molecular genetics, cytogenetics, and evolution. Students pursuing graduate degrees in genetics are encouraged to take a broad background in genetics, including courses in general genetics, molecular genetics, cytogenetics, and evolution. Students pursuing graduate degrees in genetics are encouraged to take a broad background in genetics, including courses in general genetics, molecular genetics, cytogenetics, and evolution.
Opportunities for experience in working with real problems are included.

Students concentrating on urban and regional studies are required to complete the following sequence of courses.

**INTRODUCTORY COURSES**

44:1 Introduction to Human Geography 4 s.h.
44:3 Introduction to Physical Geography 4 s.h.

At least one of these:
44:11 Introduction to Social Geography 3 s.h.
44:13 Introduction to Political Geography 3 s.h.
44:30 Introduction to Economic Geography 3 s.h.

**INTERMEDIATE COURSES**

At least two of these:
44:120 Location Strategy of Cities 3 s.h.
44:132 Industrial Location 3 s.h.
44:133 Introductions to Economics of Transportation 3 s.h.
44:135 Urban Geography 3 s.h.

**METHODS COURSES**

All of these:
44:108 Statistical Methods of Geographical Analysis 3 s.h.
44:109 Computer Methods In Geographical Analysis 1 s.h.
44:150 Undergraduate Seminar for Geography Majors 3 s.h.

**ADVANCED COURSES**

Students are required to take at least one course from each group A and B.

**Group A**

44:134 Methods of Transportation: Analysis 3 s.h.
44:137 Economic Theory of Location 3 s.h.
44:139 Economic Analysis of Urban Structure 3 s.h.

**Group B**

44:166 Contemporary Europe: Interaction and Change 3 s.h.
44:171 Urban and Rural Conflict 3 s.h.

**International Development Studies**

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. Student who are interested in the problems of developing countries and who wish to extend critical theories of development intended to explain international and regional inequalities will find this concentration helpful.

Students concentrating in international development studies are required to complete the following sequence of courses.

**INTRODUCTORY COURSES**

44:1 Introduction to Human Geography 4 s.h.
44:3 Introduction to Physical Geography 4 s.h.

At least one of these:
44:11 Introduction to Social Geography 3 s.h.
44:13 Introduction to Political Geography 3 s.h.
44:30 Introduction to Economic Geography 3 s.h.

**INTERMEDIATE COURSES**

44:04 International Development 3 s.h.

**METHODS COURSES**

44:108 Statistical Methods of Geographical Analysis 3 s.h.
44:109 Computer Methods In Geographical Analysis 3 s.h.
44:150 Undergraduate Seminar for Geography Majors 3 s.h.

**ADVANCED COURSES**

44:134 Geographic Perspectives on Development 3 s.h.

At least two of these:
44:161 Planning and Geography of Underdevelopment 3 s.h.
44:163 Geography of the Newly Industrializing Countries 3 s.h.
44:172 Development Planning and Policy 3 s.h.

One of these:
44:161 African Development 3 s.h.
44:164 Geography of the Middle East 3 s.h.

**Environmental Studies**

The undergraduate program in environmental studies is designed for students who have career aspirations or personal interests in resource management or environmental protection, or who are interested in physical geography. The program provides a knowledge of physical, chemical, and biological processes in landforms development, atmospheric conditions, hydrology, soil development, and biological communities. It stresses the interrelationships among these processes and helps students acquire knowledge necessary to assess the impact of human activities on the physical systems.

Training in field observation, quantitative analysis, computer methods, and cartographic representation are included in this concentration. The emphasis also provides an understanding of the natural environment.

Students concentrating in environmental studies must complete the following sequence of courses. Students are required to take at least one course in the department of Geography.

**INTRODUCTORY COURSES**

44:1 Introduction to Human Geography 4 s.h.
44:3 Introduction to Physical Geography 4 s.h.

44:19 Contemporary Environmental Issues 3 s.h.
29:3 Climatology and Physics of the Environment (in a more advanced course in climatology or physics) 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.
44:102 Natural Resources Policy 3 s.h.

At least one of these:
44:101 Climatology 3 s.h.
44:102 Earth Surface Processes 3 s.h.
44:103 Biogeography 3 s.h.
44:102 Natural Resources Policy 3 s.h.

**METHODS COURSES**

44:134 Geographic Information Systems 3 s.h.
44:135 Computer Methods in Geographic Analysis 3 s.h.
44:150 Undergraduate Seminar for Geography Majors 3 s.h.

At least one of these:
44:134 Geographic Information Systems 3 s.h.

**ADVANCED COURSES**

44:133 Landscape Ecology 3 s.h.
44:125 Environmental Impact Analysis 4 s.h.
44:129 Waters in the Biosphere 3 s.h.
44:127 Water Quality Science, Technology, and Policy 3 s.h.
44:128 Drainage Basin Forms and Processes 3 s.h.
44:129 Water Resources Management 3 s.h.
44:150 Field Studies 3 s.h.

**RELATED COURSE WORK**

Undergraduate work in geography. Students should select at least 12 semester hours of courses from one of the following clusters.

**Biophysical Systems**

31:001 Earth's Place in Evolutionary Time 4 s.h.
31:111 Plant Ecology 4 s.h.
31:116 Field Ecology 4 s.h.
31:119 Plant-Alien Interactions 3 s.h.
12:098 Introduction to Geology 2 s.h.
12:110 Introduction to Marine Geology 3 s.h.
12:126 Quaternary Paleohydrology and Paleoclimatology 4 s.h.
12:166 Hydrogeology and Groundwater Quality 3 s.h.
12:172 Glacial and Pleistocene Geology 3 s.h.
12:173 Quaternary Environments 3 s.h.
12:179 Geographical Geography 3 s.h.

**Environmental Engineering**

31:71 Principles of Hydraulics 2 s.h.
31:72 Principles of Hydrology 2 s.h.
31:150 Principles of Environmental Engineering 3 s.h.
31:152 Environmental Chemistry 3 s.h.
31:153 Environmental Chemistry Laboratory 3 s.h.
31:154 Environmental Microbiology 3 s.h.
31:155 Environmental Toxicology 3 s.h.
31:178 Hydrodynamics 3 s.h.
Environmental Management
68.101 Environmental Management
3 s.h.
68.105 Microeconomics
3 s.h.
68.108 Economics of the Government Sector
3 s.h.
68.113 Environmental and Natural Resource Economics
3 s.h.
68.120 Administrative Management
3 s.h.
68.161 Individual Behavior in Organizations
3 s.h.
68.163 Organizational Design and Operations
2 s.h.
102.118 Introduction to Housing and Policy Development
3 s.h.
102.123 Introduction to Environmental Policy and Planning
3 s.h.
53.014 Theories of Environmental Policy and Assessment
3 s.h.

Environment and Development
44.01 International Development
3 s.h.
44.117 Third World Development Support
3 s.h.
44.161 African Development
3 s.h.
44.162 Planning and 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.
44.194 Geographic Perspectives on Development
3 s.h.
30.150 The Political Economy of the Third World
3 s.h.
115.106 Economic and Political Development: Women's Roles
3 s.h.
115.117 Environmental and Culture
3 s.h.
115.118 Sociology of the Third World
3 s.h.
115.125 Women's Roles in Cross-Cultural Perspective
3 s.h.

Honors
The honors major is for students of superior ability who wish to pursue studies beyond the regular upper division level. To graduate with honors in geography, a student must be admitted to the University Honors Program and the honors program in geography by the fifth semester of the senior year, and must maintain a grade-point average of 3.300 in all University work and a 3.400 in geography.

Prepare and successfully defend an honors thesis.

The thesis consists of original research under the direction of a faculty member and is reviewed by a three-member faculty committee.

Students complete the thesis through a 3-credit honors tutorial in 44.100 Honors Tutorial and 44.119 Honors Thesis. The senior course 44.150 Undergraduate Seminar for Geography Majors may be substituted for 44.199 honors Thesis, provided the student continues to 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 minimum grade-point average of 2.00. Twelve of the 15 must be taken at The University of Iowa in 100 level courses. Majors are encouraged to select one of the department's five areas of concentration—urban, regional, physical, international development, or environmental studies—and take courses from those lists in that concentration. Minors who wish further assistance in selecting courses may contact the department necessary to prevent assignment of a minor advisor.

Cooperative Education Program
The Department of Geography is a participant in the University's Cooperative Education Program, which provides opportunities for both undergraduate and graduate students to secure cooperative training assignments related to their academic programs.

Courses for the Nonmajor
Students in the College of Liberal Arts as well as other areas of the University may find geography courses meaningful to their own program of study. The beginning level courses 44.11 Introduction to Human Geography, 44.12 Introduction to Social Geography, 44.19 Contemporary Environmental Issues, and 44.30 Introduction to Economic Geography are approved for the General Education Requirement in social sciences; 44.137 Third World Development Support is approved for the General Education Requirement in social sciences; 44.21 Environmental Change: the Human Factor is approved for the General Education Requirement in social sciences; and 44.23 Environmental Change: the Human Factor is approved for the General Education Requirement in natural sciences. These courses serve as part of a liberal education.

Other courses may also be attractive to individual electives. These include 44.19 Introduction to Political Geography, 44.20 World Cities, 44.26 Urban Life in the Suburbs, 44.28 Ecological Basis: Form and Process, and 44.30 Introduction to Economic and Transportation.

Graduate Programs
The department's graduate program prepares 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 any area of applied geography. Success in achieving these goals has been demonstrated by the strong demand for University of Iowa graduates to fill positions on college and university faculties, in private research organizations, and in business and government.

The department offers specialized instruction in the teaching of geography at the college level for teaching positions in secondary schools. Opportunities are provided for all graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instruction.

Master of Arts
The M.A. or B.S. degree in geography is not a prerequisite for entry into the program, but students are expected to have an undergraduate background relevant to pursuing graduate work. A strong analytical background in any of the social or environmental sciences and an interest in exploring the regional and spatial perspectives characterizing modern geography are more important than the particular disciplinary orientation of the student's baccalaureate degree. Emphasis will be placed on the background and flexibility of the student's coursework to incorporate new research or teaching opportunities, and on the development of a thesis or paper that represents significant work in the field.

The department offers six M.A. subprograms: location analysis, physical geography, political geography, regional development, transportation systems analysis, and water resources. These specialties are designed for students seeking positions in community planning, urban planning, development planning in the Third World, water resources management, and for those interested in pursuing the Ph.D.

Each subprogram sets some of the more traditional fields of geography and builds on the research specialties of the faculty. For example, since the urban geographers are located in three subprograms—in location analysis, regional development, and transportation—students entering the program for the Ph.D. may enter any of these subprograms individually or in combination. The more traditional areas of research that are included in the course of study include geophysics, environmental science, and political economy.

Although M.A. students pursue a program of study within one of the subprograms, they may gain a basic proficiency in another. The M.A. emphasizes the acquisition of analytical skills and their application in research areas that provide necessary training in oral and written communication, computer programming and graphics, statistics, mathematics, and meteorological methods, and each of the A.A. programs. Students in the transportation subprogram also take additional electives in mathematics to enable them to receive a transportation certificate in addition to their M.A.

General Requirements
The M.A. requires a minimum of 30 semester hours of graduate work, of which 15 semester
hours must be in course numbered 200 or above, in addition to fulfilling the course requirements in one of the department's six subprograms, students must:

- complete at least one course not in their own subprogram from the following introductory graduate courses: 44.112, 44.123, 44.125, 44.126, 44.138, 44.140, 44.143, 44.147, 44.175, 44.176, 44.201, 44.205, enroln in the department's general colloquium series (44.350 Research Seminar: Staff) during each semester in residence; satisfy the department's B.S. requirements or their equivalents in mathematics, statistics, and computer programming; and
- complete, with a grade of B or better, at least one 3-semester-hour quantitative methods course from a list of courses approved by the faculty.

The M.A. may be earned with or without thesis, except in the physical geography and water resources subprograms, which require a thesis. A maximum of 6 semester hours of credit may be earned by thesis work.

Students who earn the M.A. without thesis must pass a written examination and, in most subprograms, an oral examination. For students electing the M.A. with thesis, the written examination can be waived and the thesis defense serves as the oral M.A. examination.

Subprogram Requirements

LOCA TIONAL ANALYSIS:
44.134 Methods of Analysis: 3 s.h.
44.137 Economic Theory of Location: 3 s.h.
44.203 Microeconomics I: 3 s.h.

Three of these:

- 44.216 Subsistence Analysis in Geography:
- 44.236 Travel Demand Modeling:
- 44.237 Urban Economics and Urban Spatial Structure:
- 44.245 Methods of Regional Analysis: Regional Science:
- 44.249 Computer Simulation Theory:
- 44.330 Research Seminar: Location Theory:

PHYSICAL GEOGRAPHY:
An M.A. thesis is required of all students in this subprogram:
44.113 Geographic Information Systems:
44.120 Landscape Ecology:
44.128 Drainage Basin: Form and Process:
44.238 Research Seminar: Physical Geography:
44.450 Thesis:

Two of these:

- 44.225 Water Resources Systems Analysis:
- 44.250 Advanced Hydrogeology: Landscape Ecology:
- 44.258 Advanced Earth Surface Processes:

Two from one of the following groups:

12.128 Quantitative Paleontology and Palaeoecology:
12.173 Quantitative Environment:
12.119 Habitat Analysis:
12.132 Sedimentology:
12.172 Glacial and Quaternary Geology:
12.170 Flow in Open Channels:
12.373 Mechanics of Sediment Transport:
12.372 Environmental Chemistry:
12.354 Environmental Microbiology:
12.355 Limnology:
12.351 Environmental Systems Modeling:

or Equivalents as a complete course:

POLITICAL GEOGRAPHY:
44.210 Philosophy and Epistemology in Geography:
44.273 Social Theory and Human Geography:
44.315 Research Seminar: Political Geography:

Three of these:

44.175 Local and National:
44.221 Nature Society Theory:
44.232 Advanced Industrial Geography:
44.256 Political Economy of Regional Development:
44.270 Juridical Organizations/Public Service Provision:

REGIONAL DEVELOPMENT:
44.294 Geographic Perspectives on Development:
44.210 Philosophy and Epistemology in Geography:
44.284 Political Economy of Regional Development:
44.284 Agricultural Change and Rural Development in the Third World:
44.346 Research Seminar: Regional Development:

TRANSPORTATION SYSTEMS ANALYSIS:
44.216 Probabilistic and Statistical Methods in Environmental Analysis:
44.240 Environmental Statistics:
44.358 Transportation: Policy and Planning:
44.358 Transportation Demand Modeling:
44.358 Transportation Equilibrium and Planning:
44.358 Transportation Policy and Planning:
44.202 Problems in Transportation and Land Use:
44.225 Urban Transportation Planning:

*Statute the M.A. and Ph.D. quantitative methods requirements.

WATER RESOURCES:
44.230 Research Seminar: Water Resources Analysis:
44.460 Thesis:

The following courses, with at least 9 semester hours earned at the 200-level:

One:
44.126 Water in the Biosphere:
44.128 Drainage Basin: Form and Process:

Three of these:

44.121 Natural Resource Policy:
44.125 Environmental Impact Analysis:
44.238 Science, Technology, and Policy:
44.129 Water Resources Management:
44.225 Water Resources Systems Analysis:
44.221 Nature Society Theory:

An additional sequence of three courses in social theory and regional development, systems analysis, or behavioral processes, chosen under the direction of a faculty adviser is required. This may include courses in other departments and they will fill out of subprogram requirements.

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 to specialized expertise in a specific subfield. The former usually supports the general area in which the Ph.D. holder seeks employment, whereas the latter represents his or her area of most active research involvement.

The Ph.D. is fundamentally a research degree and as such is constrained by the expertise of the faculty. As the Ph.D. level, the department is best known for its rigorous analytical orientation, particularly in the areas of locational analysis, spatial behavior, transportation, third world regional development, sub-political geography, physical geography, and water resources management and policy.

The Ph.D. is a 4-year postgraduate program, the first two years of which are identical to the department's M.A. program. Students can enter the program with advanced standing corresponding to their previous graduate training equivalent to that in the department's M.A. program. Students entering the program directly from the B.S. or B.A. must fulfill all departmental requirements for the M.A. except for the M.A. examination. In addition, students whose ultimate objective is the Ph.D. are required to:

- complete at least 3 additional semester hours in graduate-level geography courses from those required or recommended for one of the department's subprograms that is not the student's general area of interest;
- complete at least one additional quantitative methods course (1 semester hour) that is at a level above that required for the B.S. and is
Undergraduate Programs

The undergraduate program puts greater stress on the basic aspects of geology than on the engineering or agricultural phases of the discipline. Geology major receive at least an academic year’s work in three allied scientific areas—physics, chemistry, and mathematics—and a semester of biological sciences in addition to a course in each major area of geology.

Students majoring in geology must meet the general requirements of the College of Liberal Arts. It is recommended that they satisfy the foreign language requirement with French, German, or Russian, and the social sciences requirement with approved courses in economics, geography, and/or anthropology. The department offers the Bachelor of Science and the Bachelor of Arts. The B.S. program features two tracks—general education, and environment. Options in the environmental track are offered; they are recommended paths of study for students seeking employment in the environmental sciences. Although they are designed for B.A. students, they may be followed by B.S. students as well.

Bachelor of Science

The Bachelor of Science professional program in geology is designed primarily as preparation for graduate study and for employment in industry. The following courses are required:

1. 124 Evolution and the History of Life 4 s.h.
2. 125 Introduction to Geology 4 s.h.
3. 222 Cultural Geology 4 s.h.
4. 232 Elementary Paleontology 4 s.h.
5. 242 Structural Geology 4 s.h.
6. 252 Geologic Field Methods 2 s.h.
7. 253 Summer Field Course 6 s.h.
8. 255 Principles of Paleontology 3 s.h.
9. At least two elective geology courses 6 s.h.
10. Total At least 38 s.h.

Students may substitute 1210 Advanced Historical Geology: Iowa for 124 Evolution and the History of Life, and 1223 Earth History and Resources for the 125 Introduction to Geology.

The geology major requires at least 10 semester hours of college mathematics, including 222M-22 Calculus I and II or 222M-36 Engineering Calculus I. Computer science or statistics courses may be counted toward the 10-semester-hour requirement.

Eight semester hours of physics and chemistry, and a laboratory course in a biological science also are required.

Bachelor of Arts

The Bachelor of Arts program, divided into general education and environmental geology tracks, is designed to provide a varied background in geology and a broader choice of electives than is available in the B.S. program. The B.A. is designed for students interested in the fundamentals of geology or in interdisciplinary environmental programs.

General Education Track

The general track provides a background in geology and allied sciences necessary for careers in conservation, urban planning, or professional geology. With appropriate course work in education, the B.A. program also provides a basic for high school or college teaching in earth science. See the College of Liberal Arts section of the Catalog. The following courses are required:

1. 124 Evolution and the History of Life 4 s.h.
2. 125 Introduction to Geology 4 s.h.
3. 1201 Mineralogy 4 s.h.
4. 1252 Elementary Paleontology 4 s.h.
5. 1212 Principles of Paleontology 3 s.h.
6. 1216 or 1211 Field Trip (two sessions) 2 s.h.
7. Geology electives 12 s.h.
8. Total 35 s.h.

*Students may substitute 1210 Advanced Historical Geology: Iowa for 124 Evolution and the History of Life, and 1223 Earth History and Resources for the 125 Introduction to Geology, 1218 Geology Field Trip Selected National Park. Fees can be substituted for 1216 or 1211; 1255 Geology Field Methods may be substituted for both sections of 1216 or 1211. An innovative field course at the Iowa Lakeside Laboratory may be substituted for both sections of 1216 or 1211 with consent of the academic advisor.

The B.A. in geology requires at least 10 semester hours of college-level mathematics, which may include computer science or statistics. Eight semester hours of chemistry are also required, and courses in other sciences and social sciences courses for which the student’s objectives are recommended.

Environmental Track

Students who are concerned with environmental issues or are interested in career opportunities in environmental problems have the option of pursuing a B.A. degree via an environmental geology track. This track is divided into a basic program for those who wish to become informed and fully appreciative of environmental issues (e.g., biologists, conservationists, government, and education), and an enriched program for those who wish to be employed as environmental geologists. The enriched track has been further subdivided into engineering geology, geophysics, geochemistry, and hydrogeology specialization.

The department encourages students who are interested in either of the above options to consult the brochure outlined for the environmental track from the Department of Geology office or the Undergraduate Academic Advising Center.

Honors

A degree with honors in geology is offered. Students in the honors program can elect a senior thesis.

Minor

A minor requires at least 15 semester hours of geology courses with a minimum grade-point average of 3.00. At least 12 of the 15 semester hours must be earned in advanced geology courses taken at The University of Iowa. All 12 hours must be numbered 100 and above. Except 123-103 Physical Geology and 123-104 Historical Geology, may be taken as advanced courses. In addition, 123-101 Mineralogy, 123-102 Elementary Paleontology, and 123-62 Structural Geology are considered advanced courses for the minor.

Gere, an Assistant Professor at the University of Irvine, states that students interested in professional geology should take additional courses in biology, chemistry, and mathematics. She also recommends that students interested in environmental geology should take courses in economics, geography, and anthropology.

Joint Programs

Joint programs can be arranged, usually with chemistry, physics, biologics, environmental engineering, and anthropology.

Original Research

Several students who are ready to pursue original research projects may obtain a faculty member or graduate student with a similar interest to sponsor an independent study. Students may initiate a small-scale project involving a combination of field, laboratory, and library investigations. Independent study is encouraged.

Undergraduate classes have produced term reports that subsequently were published.

Graduate Programs

Students planning to take graduate work in geology should complete general 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.

Graduate students in geology must take 121-107 Geology Orientation. All graduate students must perform research, write a thesis, or relate appropriate services as part of the degree program.

Graduate students who begin their programs in August 1992 or later must deliver a 15-minute presentation about his or her thesis topic. The format of the presentation is determined individually by each student in consultation with his or her committee. Suggested modes of presentations include either oral or poster presentations at local, regional, national, or international meetings; presentation at a KIC seminar; and informal teaching-lunch presentations. Students who begin their study...
before August 1902 are encouraged to make these presentations orally.

Prospective graduate students should consult "Rules and Regulations" in the Graduate College section of the Catalog by general attention and graduate study requirements.

Master of Science

The M.S. degree programs are designed to complete the student's broad, fundamental background in geology and the supporting sciences. They prepare the student for a professional career in geology or for more advanced and specialized study—although in consultation with and with faculty approval, this student may pursue an already specialized program at the master's level.

Entering graduate students are assigned to a general graduate advisor. 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 the thesis advisor and two additional faculty members, who form the student's advisory committee. The student is responsible for getting the committee's approval for a suitable program of course work, and for satisfactory development of a research plan as outlined in a thesis proposal that is submitted for departmental approval. This proposal can, however, not have to be the, in the form of a AAMG, CGS, SSA, or similar grant proposal. Automatic continuation of financial aid beyond the first year is contingent upon the student's timely selection of advisor, thesis topic, and presentation of research proposal or progress to his or her committee.

To qualify for admission to the final master's examinations, the candidate must take at least a 3.0 grade point average on graduate courses that he or she is taking toward the 30-semester hour minimum requirements for the degree with at least 24 semester hours in residence at the University of Iowa. Additional requirements for all graduate geology courses should be at least 3.60. Not more than 3 semester hours of thesis 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 subspecialties and activities. Such subspecialties might include field work or mapping, laboratory experimentation, computer applications, or some combination of these.

M.S. without Thesis

The department encourages few students to pursue a M.S. without thesis. The program requires that applicants have approximately three months' experience working under supervision of a professional geologist, or equivalent experience in some phase of geological activities.

In lieu of a thesis, the student must submit a manuscript that his or her committee deems acceptable for submission for publication.

Students may submit a previously published manuscript. The manuscript must be formatted in the style of the journal to which it will be submitted. It must also be signed by the advisor. No 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 must be advanced credit as earned by the course work. The faculty also may require that students complete a final scientific report dealing with an appropriate subject or project. Credit is granted for this report.

The final examination covers course work and work done in the thesis.

Master of Arts in Teaching (Earth Science)

This program enables students to complete certification in earth secondary school with participation in a specialized graduate curriculum. Awarded by the College of Education, the M.A.T. requires at least 30 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 course work, 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. degree in geology at The University of Iowa, where appropriate, additional work in one area may be approved as satisfying requirements in another area. The candidate must take an advanced graduate course in another discipline, which cross-listed between geology and other department, which is considered to meet the requirement. Candidates must complete at least 24 semester hours of graduate course work, on 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 considers the candidate's familiarity with the basic elements of general geology, as presented by current expository methods.

Facilities

Resources and equipment available for research in the Department of Geology include mineralogy/petrology lab (of pyroxenites, diorites, alkali basalts, gabbros, basaltic and andesitic lavas, not the same as the Department of Geological Sciences), geological lab (mineralogy, micropaleontology, biochemistry, organic chemistry, sedimentology lab, mineralogy/geochemistry lab, sedimentology lab, mineralogy/petrology, micropaleontology lab, geology and paleontology lab, and an expanded paleontology lab, inclusive of three mineral, 300 rock, and 600 fossil rock specimens).

Cooperative Activities

The department has collaborative work with the Iowa Geological Survey, and geology students sometimes work on projects for the survey.

The Department of Geology, Geography, Anthropology, Astronomy, Environmental Engineering, and Biological Sciences cooperate in sharing services, expertise, joint instruction, and equipment. The geological department is an important participant in the Iowa Geological Society, the Geology, Anthropology, and Natural Science Society, the American Association of Petroleum Geologists, the Iowa Geological Society, the Geological Society, the American Association of Petroleum Geologists, and the American Association of Petroleum Geologists.

Field Trips

Field trips are integral parts of several courses in the program. The geological field trips are to the Iowa Cretaceous, the Pennsylvanian, the Permian, the Devonian, the Carboniferous, the Silurian, the Ordovician, the Cambrian, and the Precambrian. The geological field trips are to the Iowa Cretaceous, the Pennsylvanian, the Permian, the Devonian, the Carboniferous, the Silurian, the Ordovician, the Cambrian, and the Precambrian.

Field trips provide time for longer trips in the Iowa Cretaceous, the Pennsylvanian, the Permian, the Devonian, the Carboniferous, the Silurian, the Ordovician, the Cambrian, and the Precambrian. Therefore, geology students are encouraged to participate in the field trips.

Courses

Not all courses are offered every year. For undergraduate students, the following courses are offered every year.

Primarily for Undergraduates

12000 Cooperative Internship in Geology

Practical experience. Credit variable. Permission of the Department of Geology. Credit may be repeated with a different topic for each offering. Credit not offered in conjunction with other courses.

12110 Lectures in Earth History and Resources

2.0 hours. Credit for this course may be repeated with different topics. 2.0 hours with different topics.

12111 Lectures in Earth History and Resources

2.0 hours. Credit for this course may be repeated with different topics. 2.0 hours with different topics.
For Undergraduates and Graduates

12.12 Geology—Tributary Assignment

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Students are required for 13-109 Regents Program: Accredited as Australia. Contact the Department of German for more information.

Special Facilities

Students have the opportunity to improve their comprehension and command of German by working with recorded material in the Language Media Center. They may also benefit from the computer-aided instruction program.

An extensive collection of novels and periodicals at the University Libraries facilitates research in all major areas of German literature and Germanic Studies and at all levels of study.

The Foreign Language Honor Society is an on-campus tutoring organization for undergraduate and graduate students.

Courses

Primary students for Undergraduates

13/00 Cooperative Education Internship

13/01 First Semester Dutch

Use of grammar/reading method to teach students basic skills in Dutch with supporting knowledge in phonetics and phonology. Offered only in the fall. CEU: foreign language. Prerequisites: 13/01 or equivalent.

13/02 Second Semester Dutch

Comprehensive study of Dutch, its phonetics, vocabulary, and structure. Offered only in the fall. CEU: foreign language. Prerequisites: 13/01 or equivalent.

13/03-13/04 Third Semester Dutch

Comprehensive study of Dutch, its phonetics, vocabulary, and structure. Offered only in the fall. CEU: foreign language. Prerequisites: 13/01 or equivalent.

13/05 Fourth Semester Dutch

Comprehensive study of Dutch, its phonetics, vocabulary, and structure. Offered only in the fall. CEU: foreign language. Prerequisites: 13/01 or equivalent.

13-109 Regents Program: Accredited as Australia. Contact the Department of German for more information.

13-27 Assessment German Reading II

Comprehensive study of language and culture. Offered only in the fall. CEU: foreign language. Prerequisites: 13/02 or equivalent.

For Undergraduates and Graduates

13/100 Technical German

Open only to German majors and non-majors in culture with interest of reading. CEU: foreign language. Prerequisites: 13/02 or equivalent.

13/101 Introduction to Modern German

Immersive German course which will introduce students to modern German literature, history and culture. Prerequisites: 12.02 or equivalent.

13/102 Introduction to Modern German

Correlations of 1-110. CEU: foreign language and culture. Prerequisites: 13/02 or equivalent.

13/103 Conversation and Composition I

Active reading of German in speaking, writing. Prerequisites: 13/02 or equivalent.

13/104 Conversation and Composition II

Prerequisites: 13/02 or equivalent.

13/105 German Cultural History

Survey of developments in art, philosophy, literature, culture. CEU: foreign language and culture.

13/106 Principles and Techniques of Translation

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture. Prerequisites: 13/02 or equivalent.

13/107 Regents Program: Accredited as Australia. Contact the Department of German for more information.

13/108 German for Teachers

Prerequisites: 13/102 or equivalent. CEU: foreign language and culture. Prerequisites: 13/02 or equivalent.

13/111 Survey of German Literature

Teaches students about the importance of the field. CEU: foreign language and culture.

13/115 Functional Grammar in Modern German

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture.

13/116 Business German

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture.

13/117 Contemporary German Civilization

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture.

13/118 Contemporary German Civilization

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture.

13/119 Survey of German Literature

Teaches students about the importance of the field. CEU: foreign language and culture.

13/120 Secondary School French Language

Prerequisites: 13/12 or equivalent. CEU: foreign language and culture.

13/133 Topics in Foreign Language Instruction

Prerequisites: 13/12 or equivalent. CEU: foreign language and culture.

13/134 Advanced Intermediate German

Covers a wide range of topics, with emphasis on German and cultural differences. Prerequisites: 13/12 or equivalent.

13/135 Intermediate German

Prerequisites: 13/12 or equivalent. CEU: foreign language and culture.

13/136 Elementary German

Prerequisites: 13/12 or equivalent. CEU: foreign language and culture.

13/137 Advanced German Reading II

Prerequisites: 13/02 or equivalent. CEU: foreign language. Prerequisites: 13/02 or equivalent.

13/140 Introduction to Modern German

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture.

13/141 Conversation and Composition I

Active reading of German in speaking, writing. Prerequisites: 13/02 or equivalent.

13/142 Conversation and Composition II

Prerequisites: 13/02 or equivalent.

13/143 Functional Grammar in Modern German

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture.

13/144 Business German

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture.

13/145 Contemporary German Civilization

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture.

13/146 Contemporary German Civilization

Prerequisites: 13/02 or equivalent. CEU: foreign language and culture.

13/147 Survey of German Literature

Teaches students about the importance of the field. CEU: foreign language and culture.

13/148 Secondary School French Language

Prerequisites: 13/12 or equivalent. CEU: foreign language and culture.

13/149 Topics in Foreign Language Instruction

Prerequisites: 13/12 or equivalent. CEU: foreign language and culture.

13/150 Advanced Intermediate German

Covers a wide range of topics, with emphasis on German and cultural differences. Prerequisites: 13/12 or equivalent.

13/151 Intermediate German

Prerequisites: 13/12 or equivalent. CEU: foreign language and culture.

13/152 Elementary German

Prerequisites: 13/12 or equivalent. CEU: foreign language and culture.

13/153 Advanced German Reading II

Prerequisites: 13/02 or equivalent. CEU: foreign language. Prerequisites: 13/02 or equivalent.
WORLD AREA
Students take 12 semester hours of courses that focus on a single 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, Germany, Great Britain, Western Europe as a unit
For addition 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.

TOPOCAL 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.

SCHOLAR HONORS PROJECT
Each student completes a honors project, usually during the senior year. Students register for 3 semester hours of research on the project.

Certificate Program
The Certificate Program in Global Studies is designed to promote 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 requirements. Requirements total 27 semester hours.

Students complete all requirements for their curricular major as well as the requirements of the certificate program. Courses counted for the major may be counted for the certificate. Those who complete the requirements are awarded a certificate in global studies when they receive their bachelor’s degree, and completion of the program is noted on their transcript.

Requirements
Students in the certificate program must take courses in the basic area, in one of four emphasis areas, and in a foreign language.

Basic Area
Both of these:
471:150 Global Interdependence and Human Security 3 s.h.
471:150 Global Studies Seminar 3 s.h.
One of these:
65:125 International Economics 3 s.h.
165:152 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.
44:129 Introduction to Political Geography 3 s.h.
47:195 Introduction to Public International Law 3 s.h.

Emphasis Areas
Each student takes one course in three of the following areas, and three courses in a fourth. The first three to be taken in each area is listed here. For a complete list of courses that can be counted in each area, contact the Global Studies Program office.
War, Peace, and Security
This component deals with the uses of armed force for pursuit of political ends on a continuum ranging from small regional and local conflicts to global nuclear war to individual acts of terrorism. The approaches examined cover cause, effects, lethality, and resolution of violence in the contemporary world.
16:143 War and Society 3 s.h.
or
30:106 Politics of War and Peace 3 s.h.
Development, Health, and Human Resources
This component deals with the problems of developing societies within the framework of a competitive global economy.
30:42 Introduction to the Politics of the Third World 3 s.h.
or
44:94 International Development 3 s.h.
or
113:151 Sociology of the Third World 3 s.h.

Environment and Natural Resources
This component is concerned with the use, availability, and disposal of global resources. Of special concern are environmental problems that arise from the transformation of those resources by humans using modern technology.
44:19 Contemporary Environmental Issues 3 s.h.

Cross-Cultural Understanding
Global issues require that people be educated to understand perceptions, values, and beliefs vary among societies, that these differing values complicate the process of people communicating about and aiming at possible solutions, and that without such an examination, it is a risk to accept as absolute 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 threat; to examine some of the sources, dilemmas, and policy implications of these value differences; to foster the cross-cultural sensitivity necessary for dealing with global issues; and to encourage students to clarify their own values as they bear on the analysis of global problems. Students who choose to take three courses in this area may select courses that bear on the history, culture, and politics of a single world region. Students who take three core courses should take 113:3 Introduction to the Study of Culture and Society for 3 s.h.

Foreign Language
All certificate program students are required to complete four semesters (or equivalents) of a foreign language and are encouraged to go beyond the minimal requirement.

Minor
The requirements for the global studies minor are the same as those for the certificate, except that fewer courses are taken, and the student's major does not count toward the minor.

Financial Aid
Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research from the Global Studies Program 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 research or fieldwork project on an international topic.

Courses
471:150 Global Interdependence and Human Security
Introduction studies of the global arena and its major trends, including the contemporary methods of world politics, international problems of knowledge and evaluation of current issues. Offered in IUS and IUS; 3 s.h.
471:100 Introduction to Global Studies
May be repeated.
471:105 Individual Projects in Global Studies
471:114 Methods of Field Study for Undergraduates (Directed Independent Research)
Advanced
Theoretical framework; mandatory instruction; epic travel to be above the completion of the certificate. Offered in IUS and IUS; 3 s.h.
471:100 International Security Affairs
Theoretical methodology; mandatory instruction; epic travel to be above the completion of the certificate. Offered in IUS and IUS; 3 s.h.
471:100 Global Studies Seminar
In-depth exploration of a global problem or geographic area. Content varies. May be repeated. Offered using semesters.
The general major is for students with a general interest in history. The program requirements are as follows:

Students must earn a minimum of 24 semester hours in courses offered by the Department of History numbered 16-51 or higher; of which at least 12 semester hours must be in non-U.S. history courses. The 24 semester hours in history courses must include 3 semester hours in 16-61. Electives for History Majors, preferably taken after the student has finished a number of other history courses. In addition to the 24 semester hours in history courses, students must complete a minimum of 15 semester hours of course work in related areas, such as anthropology, economics, fine arts, including studio courses, geography, history including world cultures, philosophy, political science, psychology, religion, and sociology. Courses taken to satisfy General Education Requirements will not be counted toward the related areas requirement. Students also must fulfill this requirement by electing a second major or a minor in one of the related areas.

Of the 24 semester hours of history required for the major, 12 (including the 3 semester hours of Indo-European) must be taken at residence at The University of Iowa. Credit earned through the College-Level Examination Program (CLEP) may not be counted toward the major.

Courses 16-101/2 in Russian History, 16-2 Western Civilization Since 1792, and 16-5 Civilization of Asia may not be included in the 24 semester hours of history required for the general major in history.

Teacher Certification

Students aspiring in history who wish to qualify for a teaching certificate must complete an area of concentration in history and meet the following requirements.

AMERICAN HISTORY CONCENTRATION

Courses in U.S. history (including 16-51) are 56 s.h.

Courses in related areas: 24 s.h.

Students must select 15 semester hours of course work in each of two related areas chosen from economics, geography, world history (non-U.S.), political science, and sociology.

Students also must meet special requirements in early European history by taking a 100-level course covering a period to 1750. This course also may be counted toward the related area requirement in world history if that is one of the two areas chosen.

Courses in economics, geography, political science, or sociology that have been taken to satisfy the General Education Requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

WORLD HISTORY CONCENTRATION

Courses in non-U.S. history (including 16-51) in a civilization course covering a period of a civilization 1750 or later.

Courses in related areas: 24 s.h.

Students must select 15 semester hours of course work in each of two related areas chosen from economics, geography, American history, political science, and sociology.

Courses in economics, geography, political science, or sociology that have been taken to satisfy the General Education Requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

Students seeking the teaching major in history also must complete the professional courses in the College of Education that are required for teacher certification. They should consult an advisor in social studies education (see the College of Education section of the Catalog).

Honors

The honors major is for students of superior ability who wish to pursue special interests and enjoy the experience of individual research.

Successful completion of the honors major leads to the Bachelor of Arts degree with honors in history.

To undertake the honors major in history, students must first apply to the Honors History Program and to the honors program in history. Application should be made by the beginning of the junior year and may be made earlier.

Honors students complete a minimum of 24 semester hours in courses offered by the Department of History, of which at least 12 must be non-U.S. history and 3 must be in early European history. In addition, honors students must take a minimum of 15 semester hours in non-sociology courses (see the general major in history). Another 6 semester hours in the department's honors courses, all of which must be earned honors essay credit, also are required.

Honors credits may be obtained in honors tutorial, all supervised research for the honors essay, and honors-designed sections or honors courses. The honors essay should be a 30- to 40-page paper based on some research in primary sources and a concise report of the project before the defense of the essay, usually in the eighth week of the student's final semester.

Minor

A minor may be earned by any student who completes at least 15 semester hours in history with a minimum grade-point average of 2.50. Twelve of the 15 semester hours must be in advanced courses taken at The University of Iowa. For the minor, all courses numbered above 16-71 are regarded as advanced.
Graduate Programs

The graduate programs in history prepare students for occupations such as high school or college teaching, publishing, commercial research, and government or other public service. With additional specialized training, students of history become qualified for careers in archival work, library work, museum work, or historical site preparation and display. Some students enter the joint program leading to a Ph.D. degree in both law and history (see "Joint Law and Graduate Degree Program" in the College of Law section of this Catalog).

Qualified graduate students are invited to apply for fellowships and assistantships, which should be directed to the departmental office.

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 nine semester hours of two or more seminars or one seminar and one reading course. One seminar or reading course must be taken at each of the first two semesters of residence. Twelve semester hours must be in the area of the student's essay topic, and at least six semester hours must be in a second division, such as another seminar or reading 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 16-204 Individual Study: Graduate. The finished product should contain the character of articles in scholarly journals and present the student to the best Ph.D. dissertation takes the form of a full-length scholarly manuscript.

The second M.A. program is designed for students who do not intend to pursue the Ph.D. degree. It requires a minimum of 18 semester hours of credit, including the completion of research capabilities culminating in the essay, the alternate plan course work. Students in the alternate plan must take six semester hours of elective courses in history or six semester hours in one other discipline, in addition to the alternate plan required courses. Included in these 12 semester hours must be at least one readings or seminar course in history. After completing these requirements, or during the fall semester of the year 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 work, such as a seminar paper or an M.A. thesis. They must then 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 32 semester hours (eight courses) in 400-level history courses, except those in theses. At least 20 of these 32 hours must be completed before the student takes the comprehensive examination, and at least 20 of these 32 hours must be completed at The University of Iowa. Research seminars taken at the M.A. level may be counted toward this 20-hour requirement. The candidate must earn at least 32 semester hours of credit in the philosophy of history, historiography, or methods of historiographic 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 those distinct fields, two of which must be in a major division that is chosen from the following disciplines:

- The ancient world
- Medieval Europe
- Europe, including Great Britain 1500-1815
- Europe, including Great Britain 1815-present
- Russia and the Soviet Union
- United States history
- Latin America
- China
- Japanese history
- History of India
- Economic history
- Military history
- History of science and medicine

The final must be written in a division outside the candidate's major division or in a related department outside the history department. The committee may define and elect the individual fields for examination. It may also elect, separately for each field, the choice of the written portion of the comprehensive examination, which may take the form of a syllabus, a critical bibliography, a topical paper, or any other form or combination of forms that the committee deems suitable. The oral portion of the comprehensive examination will focus on topics and problems arising from the examination papers.

The candidate must submit to a dissertation committee a written prospectus for the dissertation no later than the semester following completion of the comprehensive exam. The committee consists of at least five members, including at least one member from outside of the department. In cases where the prospectus may require approval, it may request it. When the dissertation is completed in final form, the committee administers the final examination for the dissertation, 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 Examinations (GRE) General Test scores.

In addition, students must submit samples of original writing to the history department, such as a term paper, a seminar paper, or an honors thesis, and letters of recommendation from three persons familiar with the student's past academic work. The candidates may be considered for admission without the GRE. Applicants who wish to be considered for a University of Iowa Fellowship should submit complete application materials by January 15.

Guide to Graduate Study

Further information on graduate study is available from the Graduate College, available from the history department. The guide is revised every spring to include the latest faculty listing, research interests of faculty members, detailed regulations on study toward advanced degrees, and other information of interest to prospective students.

Special Facilities

The University's libraries are among the finest in all aspects of U.S. History. The Main Library houses the Henry A. Wallace papers and related collection of agricultural materials. European history, special strengths are in the American society and American history. The Iowa State Historical Department in Iowa City and the Herbert Hoover Presidential Library in West Branch offer additional valuable research materials.

Courses

Courses numbered 16:1 through 16:38 are ordinarily taken to satisfy the General Education requirements in the liberal arts. Students in these courses cannot be taken pass/fail/auditors, even when they are taken pass/fail/auditors. History majors must have junior or senior standing in order to enroll in 16:51. Other courses numbered below 200 are offered to freshmen who have already satisfied the General Education Requirement in historical perspectives. Most courses numbered below 200 are offered alternate semesters. Courses numbered 200 and above usually are offered as occasion demands.
Interdepartmental Studies

Requirements

Students must submit a total of at least 124 semester hours of credit to graduate with a B.A. in interdepartmental studies. They must complete a minimum of 30 semester hours after enrolling in the program, 15 of which must be in advanced level courses. 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 Requirements

Students must complete the College of Liberal Arts General Education Requirements, including four semesters of college-level foreign language or an equivalent. (See the College of Liberal Arts Introductory section for specific information.)

Advanced Course Work

Students must complete at least 36 semester hours of advanced course work at The University of Iowa. 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 the total toward the 124 semester hour needed for graduation.

Courses taken to satisfy the General Education Requirements may not be counted toward completion of the advanced course work requirement.

Advanced courses typically are those numbered 100 and above. With approval of the Office of Academic Programs, courses numbered below 100 but taught at an advanced level also may be used to satisfy this requirement. See "Advanced Courses Numbered Below 100" in this section of the Catalog.

The pass/nonpass grading option is not available for the 36 semester hours of advanced course work required for the degree, but it may be used for advanced course work beyond the 36 semester hours.

Some study abroad advanced course work is considered residential work for the purposes of SIP requirements and college residence requirements. Students should check with an advisor to determine whether or not the credit awarded will satisfy residency requirements for the degree.

Advanced courses offered through University of Iowa Guided Correspondence Study count toward the advanced course work requirement; however, the College of Liberal Arts residence requirement must be met by either UI course work.

Restrictions

No more than 40 semester hours of credit in any one academic department may count toward the 124 semester hour requirement 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 any other college 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/fail, substitution/ISE, and academic standards apply to SIP students.

Related Considerations

All courses numbered with the prefix 7 (College of Education) are considered to be in one department.

All courses numbered with a prefix 6 (College of Business Administration) except 68 (economics) are also considered a department in the College of Liberal Arts and are considered to be in one department.

Advanced Courses Numbered below 100

The following courses are accepted as part of the 36 semester hours of advanced course work required under the SIP rules. Students must earn at least a grade of 2.00 or better in these courses and in those numbered 100 and above.

Advanced courses numbered below 100 that were taken before spring semester 1968 are not considered advanced level course work. Some of the courses have prerequisites or require special permission signatures.

AMERICAN STUDIES

45 57 American in American Cultural Studies 3 s.h.

ART AND ART HISTORY

19-49 Advanced Painting 2-3 s.h.

19-22 Undergraduate Drawing and Design I 3 s.h.

19-17 Undergraduate Sculpture Workshop 3 s.h.

ASIAN LANGUAGES AND LITERATURE

30-33 Second-Year Japanese 3 s.h.

30-35 Second-Year Spanish 3 s.h.

39-50 Non-Western Literacy Traditions 3 s.h.

BOTANICAL SCIENCE

2-3 Iowa Rivers (accepted as advanced course work only if 2.00 Plant Taxonomy also is completed) 3 s.h.

CLASSICS

14-11 Second-Year Greek I 3 s.h.

14-12 Second-Year Greek II 3 s.h.

20-61 Age of Greece 3 s.h.

20-68 Age of Augustus 3 s.h.
COMMUNICATION STUDIES
All courses numbered 350-699 and above
All courses numbered 550-699 and above

COMPARATIVE LITERATURE
48-40 Major Tracks in World Literature 3 s.h.
48-41 Major Tracks in World Literature 3 s.h.
45-50 Non-Western Literary Traditions 3 s.h.
49-05 Undergraduate Seminar 3 s.h.

COMPUTER SCIENCE
22C-22 Algorithms and Data Structures 3 s.h.
22C-23 Programming III 3 s.h.
22C-31 Data Management Systems Concepts 3 s.h.
22C-22 Introduction to Systems Software 3 s.h.
22C-51 Computer Graphics 3 s.h.
22C-59 Explorations in Numerical Analysis 3 s.h.

DENTAL HYGIENE
60-21 Human Anatomy 4 s.h.

ENGLISH
All courses numbered above 610, except 6G courses, 8P-30, 8P-50, and 8P-40
All 400 courses

EXERCISE SCIENCE
27-33 Human Anatomy 3 s.h.

BIOLOGY
12-41 Microbiology 4 s.h.
12-53 Elementary Zoology 4 s.h.
12-92 Structural Geology 5 s.h.

HISTORY
16-51 Collegium for History Majors 3 s.h.
16-54 Problems of Theory 2 s.h.
16-99 Historical Background of Contemporary Issues 3 s.h.

MATHEMATICS
22M-27 Introduction to Linear Algebra 4 s.h.
22M-39 Calculus III 4 s.h.
All courses numbered 22M-150 or higher, except 22M-91

PHYSICAL EDUCATION AND SPORTS STUDIES
28-91 Human Growth and Motor Development 2 s.h.
28-95 Psychological Dimensions of Physical Activity 3 s.h.

PHYSICS AND ASTRONOMY
29-19 Introductory Physics III 4 s.h.

STATISTICS AND ACTUARIAL SCIENCE
22S-19 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.

THEATRE ARTS
49-21 Basic Acting II 3 s.h.
49-23 Elements of Design 3 s.h.
49-40 Play Script Analysis 3 s.h.
49-62 Basic Playwriting 3 s.h.
49-72 Shakespeare 3 s.h.
49-94 One Interpretation of Literature 3 s.h.

Honors
ISP students qualify for membership in the University Honors Program by attaining a cumulative grade-point average of at least 3.20. Graduating with honors requires a successful completion of the honors requirements in a particular department. For details of departmental requirements, students should consult the University Honors Program or the ISP coordinator.

ISP students should initiate inquiries about graduating with honors by contacting the coordinator. Students are encouraged to initiate early in their junior year to allow time for discussion and 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 associate director of the honors program, and the student’s ISP advisor.

Double Major
Students in Interdepartmental Studies may earn a second major. No more than 15 semester hours of course work may be applied toward both majors. The focus represented by each major should be distinct and separate.

Minor
The Interdepartmental Studies Program does not offer a minor. Interdepartmental studies majors may earn a minor in another program, or they may select courses that are not required for their ISP major or their ISP minor and accumulate them toward the minor.

Career Considerations
Since the B.A. in interdepartmental studies affords opportunities outside the traditional degree paths, students must create programs of study that meet their individual educational and career objectives. Those who plan to work immediately after graduation should familiarize themselves with the educational background and qualifications required by employers and should include appropriate courses in their programs of study. Students preparing for advanced study should become familiar with the admission requirements of graduate or professional schools. The easier it is for them to complete any necessary prerequisites.

ISP students who design a cohabitation program and maintain a cumulative grade-point average may be considered equally with students who earn other undergraduate degrees for employment or admission to some graduate and professional schools.

Courses
145-00 Cooperative Education Internship 4 s.h.

Financial Aid
The University of Iowa has established several Thomas M. Maclachlin Scholarships in Natural Science for undergraduate and graduate students among the lab. The scholarships
Registration
Enrollment is one of the State Board of Regents universities is required. Current non-credit students of The University of Iowa, the University of Northern Iowa, and Iowa State University may enroll in those institutions with the registration forms in the Library/Laboratory Bulletin. Students from other institutions must apply for admission to one of the Regents universities; each has a provisional admission policy for students who wish to register for winter semester only. The admissions and registration forms can be submitted by first class mail.

Early registration is advisable. Students are urged to submit applications before May 1 for the following summer session.

Courses
Consult a counselor is required for all courses. Enrollment for mail is subject to eight credits. Classes open all fall. Fall classes open only August. Courses vary from week to week (see actual Iowa Library/Laboratory bulletin); the following are representative.

1101 Field Native History
5.0h.
Ecological theories as to the causes original of Iowas, and field trips to native-land, small, and existing habitats; subject to the completion, sampling, and interpreting observations of plant and animal communities, the influence of man on the development of communities, and the effects of the environment. The emphasis is on the unique natural aspects of the region. Required course in biological sciences.

1110 Field Biology
5.0h.
Introduction to the natural world of Iowa plants, animals, emphasis on ecology, conservation, population, pollination, disease, and plant identification methods. Prerequisites: one course in biological sciences.

1193 Aquatic Ecology
4.0h.
Study of aquatic systems, populations, ecosystems, emphasis on in situ and in vitro techniques. Field work and methods are major in scope. Icysis is not a course at any institution. Required course in biological sciences.

1194 Aquatic Ecology Projects
1.0h.
Independent project work.

1194 Field Taxonomy
5.0h.
Basic principles of classification and evolution of vascular plants, lower plants, invertebrates, and, if necessary, plants, emphasis on field selection and group project.

1197 Field Paleontology
4.0h.
Field study of the vertebrates, prehistoric, human, and non-human, emphasis on the collecting and interpreting the geological and biological features of the region. Required course in biological sciences.

1198 Study of Predatory Insects
3.0h.
Study of the selection and classification of the common flies, for research and educational purposes, and natural settings the area is cut and rear to complete. Required course in one area in molecular biology. In preparation for the development of professional skills in the world of professional communications. Mose or for the medium of the media in society.

1196 Current Literature
1.0h.
Lectures and field study of a classic regional and national movements in the field of advertising and other media; extension field study.

1196 Developmental Biology of freshwater animals
4.0h.
Introduction to the principles of development, emphasis on freshwater animals. Required course in biological sciences.

1222 Précis Writing
4.0h.
Basics of writing a short non-fictional piece, emphasis on making an interesting and stimulating piece of writing. Required course in biological sciences.

1252 Invertebrates
5.0h.
Field study of invertebrates. Required course in biological sciences.

1253 Field Vertebrate Zoology
5.0h.
Field study of vertebrates. Required course in biological sciences.

1254 Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

1255 Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

1256 Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

1257 Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

1258 Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

1259 Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125A Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125B Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125C Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125D Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125E Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125F Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125G Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125H Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125I Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125J Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125K Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125L Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125M Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125N Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125O Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125P Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125Q Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125R Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125S Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125T Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125U Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125V Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125W Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125X Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125Y Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

125Z Field Vertebrate Zoology
4.0h.
Field study of vertebrates. Required course in biological sciences.

ITALIAN
See "French and Italian."
either an additional advanced reporting and writing course or a media workshop (19:130-19:139). Every major must complete 19-149 Legal and Ethical Issues in Communication and one additional conceptual course numbered 19-150 to 19-189. Majors add a minor in political science or communication to that schedule.

Because of the flexibility inherent in the undergraduate program, each new major should develop an individual plan of study in consultation with a faculty advisor.

**Required Courses**

- **Premajor Foundation**
  - 19:40 Social Scientific Foundations of Communication (3 s.h.)
  - 19:91 Cultural and Historical Foundations of Communication (3 s.h.)

- **Journalism Laboratory**
  - 19:115 Journalism Reporting and Writing (4 s.h.)
    - One advanced reporting and writing course (19-120-19-123) (4 s.h.)
    - A second advanced reporting and writing course (19-120-19-125) (4 s.h.)
    - One media workshop (19-130-19-130) (3 s.h.)

- **Conceptual**
  - 19:149 Legal and Ethical Issues in Communication (3 s.h.)
  - A conceptual course numbered 19-150 to 19-159 (3 s.h.)

- **Electives**
  - Chosen from undergraduate courses (6 s.h.)
  - Additional Electives
    - An additional 3- or 4-semester hour course, for the maximum, 34 semester hours (optional)

**Second Area of Concentration**

In addition to completing the College of Liberal Arts General Education Requirements, every journalism major must complete a second area of concentration outside of journalism and mass communication. Study in the second area permits students to acquire a substantive body of knowledge, learn how another discipline views the world, or develop a comprehensive set of skills that will be useful in journalism and mass communication. The program gives students the opportunity to complement 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 faculty advisor in the School of Journalism and Mass Communication to receive possible interest area and topics the student might pursue as an honors project. The student also should identify a faculty member with whom he or she will develop an honors project. The student must 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. The student must develop the form and topic of the thesis or project in a written proposal, which must be accepted by the faculty advisor. Once the proposal is accepted, the student enrolls in 19-191 Honors Project under the faculty member's section number. Students become official honors candidates in the school once they enroll in this course.

The honors candidate must make a formal presentation of the project to a committee consisting of the faculty advisor, as chair, and two other faculty members selected by the student in consultation with the advisor. At least two committee members must accept the completed project before the student can receive an honors degree in journalism and mass communication.

The school's maximum limit of 34 semester hours of journalism courses must be waived for students who complete honors degrees in journalism and mass communication.

**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; 15 of the 30 semester hours must be taken in advanced courses at The University of Iowa. Advanced courses are those numbered 19-100 or higher, or those numbered below 19-100 which are considered to be advanced. A list of advanced courses numbered below 19-100 is published with the degree requirements for the undergraduate Studies Program in Journalism and Mass Communication in the section of the Catalog. One of the following courses is strongly recommended:

- 19-00 Social Scientific Foundations of Communication (3 s.h.)
- 19-01 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/fail/transfer.

**Transfer Students**

All transfer students with a declared interest in journalism are classified as premajors. They may apply for major status during the semester in which they have completed at least 60 semester hours including those earned from The University of Iowa and other institutions, their prior requirements, 19-00 Social Scientific Foundations of Communication, and 19-01 Cultural and Historical Foundations of Communication. Neither of these prerequisite courses may be completed in the form of a thesis or an honors project. The student must develop the form and topic of the thesis or project in a written proposal, which must be accepted by a faculty advisor. Courses numbered below 19-100 are not acceptable toward fulfilling elective and/or second area of concentration requirements. Transfer credit intended to meet School of Journalism and Mass Communication requirements must be discussed with a journalism faculty advisor and approved by the head of the undergraduate studies after the student is admitted to the school.
Graduate Programs

Master of Arts
The School of Journalism and Mass Communication offers a Master of Arts program with two separate emphases: professional journalism and communication and mass communication. Applicants should indicate the emphasis for which they seek admission. Each emphasis requires 30 semester hours of approved course work and successful completion of a master's project or thesis. The specific requirements of each emphasis are listed below.

Professional Program in Journalism
This program is for individuals who wish to improve their technical and analytical skills and to broaden their understanding of the role and function of mass communication in contemporary society, but do not plan to engage in Ph.D. work. It serves the student who has a background in a field other than journalism and has not completed a undergraduate degree in another field or has worked in a career related to journalism (see “Group 1 Requirements”). It also serves the student who has worked in some areas of mass communication (see “Group 2 Requirements”).

The program is not designed or intended for individuals who have just completed undergraduate programs in journalism and have no subsequent work experience in mass communication.

GROUP 1 REQUIREMENTS
19:115 Journalism Reporting and Writing (does not count toward degree) 4 s.h.
19:220 Master's Seminar 3 s.h.
Two advanced reporting and writing courses [19:220-19:225] 6 s.h.
A third 400-level reporting and writing course 3 s.h.
One media workshop [19:240-19:249] 3 s.h.
Electives 15 s.h.
19:290 Master's Research (project) 3 s.h.

Electives require consent of the advisor and may be selected from other School of Journalism and Mass Communication courses or courses offered by other departments.

GROUP 2 REQUIREMENTS
19:220 Master's Seminar 3 s.h.
19:294 Master's Research (thesis) 3 s.h.
Journalism and mass communication electives 9 s.h.
Other Electives 15 s.h.

Electives require consent of the advisor. The 15 semester hour of “other electives” may be selected from either School of Journalism and Mass Communication courses or courses offered by other departments.

Every student in the professional program must complete a project (19:294) under the supervision of a committee of three members of the graduate faculty.

There is considerable flexibility within the professional program. The model programs are intended as general information for new and prospective students. The actual program of study for any student is planned in close consultation with the advisor.

Communication and Mass Communication Emphasis
This emphasis offers a specialization in the study of communication phenomena with special emphasis on theory and methodology. Qualified individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. program after successful completion of their M.A. work. The following courses are required:

19:220 Master's Seminar (two semesters) 2 s.h.
19:221 Approaches to the Study of Communication: Issues and Concepts 3 s.h.

One of the following methods courses:
3 s.h.
19:330 Communication Research: Hypothesis Approach 3 s.h.
19:351 Communication Research: Behavioral Approaches 3 s.h.
19:352 Communication Research: Phenomenological Approaches 3 s.h.
19:353 Communication Research: Legal Approaches 3 s.h.

Electives in journalism and mass communication and in other departments 19 s.h.
19:399 Master's Research (thesis) 3 s.h.

Every student in the communication and mass communication emphasis must complete an M.A. thesis (19:294) under the supervision of a committee of three members of the graduate faculty.

All students are expected to take course work in addition to the M.A. thesis. Students are expected to complete all course work within five years of the start of the program, and at least 30 hours of that coursework must be completed during the four years following the start of the program. Students must be in full-time status in order to complete the program.

Doctor of Philosophy
The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Approaches to theoretical, evaluative, and critical inquiry. The program's substantive nature is defined by the scholarly interests of its faculty, who form a major influence in investigations of historical, legal, economic, cultural, social, and political aspects of communication, both verbal and visual.

The Ph.D. program is highly individualized. Research 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 Student 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, radio, video, electronic newswriting, and desktop publishing students, the newsroom and other facilities on 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 Hearst Special Presentation room, and the Fred M. Powers Seminar Room.

The school has two historic courtyards, the Kenneth and Harriet Greene Resource Center, and pays for various scholarships for the Iowa High School Press Association and the State and National Press Associations. A number of offices is available to students and faculty in the Communications Center.

Iowa Center for Communication Study
The center encourages and facilitates student and faculty research in the field of communication. Among its publications are The Journalism, Mass Communication and Society, written by graduate students, and The Iowa Guide to Scholarly Interest in Mass Communication and Related Fields.

Financial Aid
More than $4,000,000 in scholarships is available to undergraduate and graduate journalism students. Scholarships for journalism programs 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 to meet financial support for student research projects.

Professional Enrichment
The school encourages students to participate in leadership activities outside the classroom. Internships in journalism and public relations positions are available to students. These experiences are selected and monitored to contribute to students' professional growth. The School of Journalism and Mass Communication does not award academic credit for internships, but students may earn credits by enrolling in independent study in conjunction with internships. In addition to internships, students have opportunities to join student organizations, including the Newspaper Editors Association, the Journalism Association of 10-18 years old, and the Newspaper Yearbook—providing opportunities to continue writing and editing experience.
Latin American Studies Program • Liberal Arts

Programs

Certificate

Students pursuing the certificate in Latin American Studies must earn at least 27 semester hours of credit in courses selected from the list of approved LASC courses below. These courses should include 135:176 Latin American Studies Survey, and at least 9 semester hours in at least three of the following departments: anthropology, history, political science, and Spanish and Portuguese. LASC approved courses that apply toward the student's major also may be applied toward the LASC certificate.

Minor

To earn a minor in Latin American studies, students complete 13 semester hours in courses selected from the list of approved LASC courses, with a 2.0 minimum grade-point average. 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. Students with double majors may not count more than 3 semester hours from their major department.

Cultural Experience

It is highly recommended, but not required, that students have an in-depth Latin American cultural experience, usually through study or volunteer work abroad, before they complete their undergraduate requirements. Students should consult the Latin American studies advisor regarding available options. Courses taken in study-abroad programs may be applied toward the minor, subject to prior approval by the appropriate LASC committee members and the Latin American studies advisor.

Approved LASC Courses

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 with the Latin American studies advisor for more descriptions, and see the appropriate departmental sections of the Catalog.

ANTHROPOLOGY
113:109 Literature and Anthropology 3 s.h.
113:115 Ethnology of South America 3 s.h.
113:116 Ethnology of Mesoamerica 3 s.h.
113:118 Social Anthropology of the Caribbean 3 s.h.
113:131 Latin American Economy and Society 3 s.h.
113:148 Special Topics in Anthropology 3 s.h.
113:163 Archaeology of Mesoamerica 3 s.h.
113:206 The Aztec, Their Predecessors, and Their Contemporaries 3 s.h.

ART
113:105 Art of Pre-Columbian America 3 s.h.

HISTORY
113:110 Topics in Latin American History 3 s.h.
113:111 Colonial Latin America 3 s.h.
113:112 Introduction to Modern Latin America 3 s.h.
113:113 The Mexican Revolution 3 s.h.
113:116 Women in Latin America 3 s.h.
113:117 History of Brazil 3 s.h.

LATIN AMERICAN STUDIES
130:120 Contemporary Latin American Novel Colloquium 3 s.h.
130:176 Latin American Studies Seminar 3 s.h.

POLITICAL SCIENCE
30:144 Latin American Government 3 s.h.
30:145 Major States of Latin America 3 s.h.

PORTUGUESE
30:105 Brazilian Literature I 3 s.h.
30:106 Brazilian Literature II 3 s.h.
30:14 Topics in Portuguese Literature 3 s.h.
36:14 Culture and Civilization of the Portuguese-Speaking World 3 s.h.

SPANISH
35:126 Spanish American Civilization 3 s.h.
35:131 Contemporary Spanish Literature 3 s.h.
35:132 Spanish American Poetry I 3 s.h.
35:133 Spanish American Drama 3 s.h.
35:134 Spanish American Short Story 3 s.h.
35:135 Contemporary Latin American Novel and Short Story 3 s.h.
35:138 Survey of Twentieth-Century Puerto Rican Literature 3 s.h.
35:139 Spanish American Poetry II 3 s.h.
35:140 Mass Communications in Spanish America 3 s.h.
35:145 Latin American Cinema Survey 3 s.h.
35:150 Spanish Films of Latin America 3 s.h.
35:150 National Literature and Cinema of Latin America 3 s.h.
35:173 Spanish American Literature of Pain 3 s.h.
35:173 Latin American Women Writers 3 s.h.
35:175 Cultural Identity in Caribbean Literature 3 s.h.
35:178 Culture and Language in the Andes 3 s.h.
35:179 Twentieth-Century Literature in Latin America 3 s.h.
35:190 Chicano Cinema 3 s.h.

Financial Aid

Students are encouraged to apply for a Senior Undergraduate Scholarship for International Research and Study through the Center for International and Comparative Studies. The scholarships are awarded to outstanding University of Iowa undergraduate students who, in close consultation with a faculty mentor, propose a

LATIN

See "Colloquiums."
well-conceived research or fieldwork project on an international level.

**Courses**

130-140 Contemporary Latin American News

2 hr., Latin American, covers topics; emphasis on political, economic, social issues. Same as 20:136.

130-178 Latin American Studies Seminar


**LEISURE STUDIES**

Chair: Michael L. Tongue

Professor: R. M. Houts, Richard D. MacNeil, Michael L. Tongue

Associate professor: Carolyn Lee Heald, Kenneth E. Wadley

Visiting lecturer: Carlos J. Lomin

Undergraduate degrees: B.S. in Leisure Studies; M.A. in Leisure Studies.

Graduate degrees: M.A. in Leisure Studies.

In 1940 The University of Iowa became the first institution to offer required courses in leisure studies, and in 1960 it was the first to offer a program in leisure studies. The mission of the Department of Leisure Studies has been three major components: liberal education through leisure studies, professional preparation for the leisure service professions, and the research of leisure as a behavioral and cultural phenomenon.

By studying the value and function of leisure in a modern society that is at once blessed and burdened with more free time, the department serves the cause of the liberal arts ideal, a healthier and more humane life.

The Department of Leisure Studies emphasizes the education of all liberal arts students. Specifically, it offers courses designed to satisfy 3 semester hours of the College of Liberal Arts' General Education Requirements in the humanities (104-242) and in the social sciences (104-505). Both are intended for all students.

In the past 40 years, the number of people employed in recreation and parks has increased dramatically. There are opportunities for professionals throughout the United States and around the world.

**Undergraduate Program**

Applicants to the undergraduate program in leisure studies must have a minimum cumulative grade point average of 2.00 based on at least 15 semester hours of completed coursework. They must submit a one-page statement of their interest in leisure studies, significant work or volunteer experience, exceptional personal qualities, and other pertinent information. Letters of reference are optional. Applications are available from the departmental office. Deadline for Fall semester admission: March 1; for spring semester, October 1.

**Requirements**

Students must take 37 semester hours of core courses, including the following:

- 104-106 Leisure in Contemporary Society 3 s.h.
- 104-101 Recreation Leadership and Programming 4 s.h.
- 104-103 Leisure Research 3 s.h.
- 104-105 Introduction to Therapeutic Recreation 3 s.h.
- 104-106 Administration of Recreation 3 s.h.
- Elective course in leisure studies (preliminary 104) 3 s.h.
- 104-107 Special Topics in Service Learning 1 s.h.
- 104-106 Internship in Recreation 7 s.h.
- 104-109 Internship in Recreation 8 s.h.
- 27:56 or 27:77 Fundamental of CPR 2 s.h.

Students also must take 6 semester hours of courses in one of the following areas of concentration.

**Community Recreation**

- Community recreation concentration is designed for students preparing for positions as administrators of recreation programs, facilities, and departments. It is oriented primarily to municipal, district, and county-level recreation and park departments.

The following courses are required:

- 104-120 Park and Recreation Facility Management 3 s.h.
- 104-134 Introduction to Planning and Design of Recreation and Park Areas and Facilities 3 s.h.

Three elective courses selected with advisor.

**Therapeutic Recreation**

Therapeutic recreation prepares students to organize, plan, and lead recreation programs in treatment and institutional settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

The following courses are required:

- 104-121 Orientation to Special Populations in Therapeutic Recreation 3 s.h.
- 104-125 Role of Therapeutic Recreation in Rehabilitation 3 s.h.

Three to six courses, selected with the advisor, that satisfy pre-examination requirements for certification set by the National Council for Therapeutic Recreation Certification.

**Commercial/Industrial**

The commercial/industrial track prepares students for careers in commercial recreation operations (health spa and clubs, sales of recreation goods, services) or in industrial recreation and employee provided recreational services and opportunities for employees. In the commercial/industrial concentration area, students must select one of the following two emphasis areas.

**BUSINESS OPTION**

The following courses are required:

- 104-120 Park and Recreation Facility Management 3 s.h.
- 104-134 Introduction to Planning and Design of Recreation and Park Areas and Facilities 3 s.h.
- 104-129 Managing the Commercial Recreation Enterprise 3 s.h.
- 104-168 Computer Applications for Park and Recreation Management 3 s.h.

Students also must complete 15 semester hours in business or communications at the discretion of the advisor.

**HEALTH PROMOTION OPTION**

The following courses are required:

- 27:53 Human Anatomy 3 s.h.
- 27:140 Exercise Physiology for Physical Education 3 s.h.
- 27:141 Exercise Physiology 3 s.h.
- 104-138 Health Promotion in Corporate, Hospital, and Private Setting 3 s.h.

Students also must complete a minimum of 9 semester hours in two of the following program areas: physical fitness, nutrition, substance dependency, health psychology, and business management.

**Internship Opportunities**

The Department of Leisure Studies places special emphasis on practical experience and student involvement with the profession and practitioners. Students are encouraged to attend state and national professional conferences, and many classes in the professional core include lectures by working professionals as well as networking opportunities for real experience related to course content.

The practical emphasis is completed by a 15 or 30 semester hour internship in an agency compatible with the student's area of concentration. The internship is designed to lead to professional placement. Several hundred local, state, and national agencies, agencies, and industries provide network and internship opportunities for students in the department.

**Honors**

Admission to the honors program in leisure studies requires a normal application, completion of at least 30 semester hours of course work at The University of Iowa, completion of at least 9 of the 30 semester hours of required major course work, and a grade point average that meets the minimum requirement of the University Honors Program.

To graduate with honors in leisure studies, students must successfully complete 15 semester hours of honors work. With the permission of the chair of their honors committee, students may take 3 semester hours of hours work in another department.
The School of Library and Information Science offers a program of professional and academic preparation for careers in all types of libraries and information centers—public, school, academic, and special. It seeks to recruit, prepare librarians and information professionals to contribute to the advancement of librarianship through research, and to provide public service. The program is accredited by the American Library Association.

Program Goals and Objectives

The goals of the School of Library and Information Science are to offer a graduate program of professional preparation in library and information science that reflects the variety and growth of information needs led by society and individuals; to engage in research that increases understanding of the nature of information needs and of the activities that can be taken to provide for those needs; and to provide public service through contributing to education and consulting and through association and other professional service, so that growth is fostered beyond traditional basic professional program, and to help people have the information service they need.

Instructional Objectives

Upon completion of the program, students are able to:
- demonstrate an understanding of the history and theory of library and information science sufficient to recognize their role in today's society and the library's importance in the promotional process;
- articulate a philosophy of librarianship that includes an understanding of intellectual freedom and the role of libraries in society;
- demonstrate a professional attitude toward the librarian's role in meeting social and information; and show a commitment to improve the quality of library and information services in response to the needs of all segments of society;
- demonstrate an understanding of information resources, the flow of information through society, and the role of libraries and information centers in the process;
- demonstrate an appreciation for the contribution that information, libraries, and learning can make to the quality of life, and the ability to convey that appreciation to others;
- demonstrate knowledge of the principles and procedures of effective information service (i.e., selection, acquisition, organization, retrieval, and dissemination of information);
- identify and use bibliographic techniques and sources of information in a broad range of media formats for a variety of fields of knowledge;
- articulate an understanding of management theory and practice sufficient to plan library and information services and perform the professional responsibilities of identifying needs, writing goals, analyzing problems, developing programs, and evaluating results.
- demonstrate an understanding of information technology and of software systems relevant to the functions of libraries and information centers;
- cite and evaluate research that built in the advancement of the profession;
- articulate an understanding of the multifaceted library science course and the contributions of relevant fields of knowledge to the discipline; and
- demonstrate a commitment to professional growth.

Research Objectives

Further engage in research on library and information problems that advance both theoretical and practical knowledge. This includes research that directly supports the instructional programs of the School of Library and Information Science.

Public Service Objectives

The school offers library and information personnel and library trustees opportunities for continuing education that enhances and updates their awareness of current developments in library operations and information services. It provides consulting services to individuals, libraries, and organizations in order to promote better library and information service for the citizens of Iowa and surrounding areas. Faculty and students in the school participate in local, state, regional, and national levels.

Undergraduate Study

Although there is no undergraduate major in library science, facilities and services may be utilized by students toward the degree, and courses work completed after admission to the program, and all upperclassmen course work.

All other College of Letters & Science Policies regarding academic counseling, academic standing, and all beyond to B.S. students.

Further information about the B.S. program is available from the Center for Core Programs.

Courses

ZS06 Cooperative Education Internship

LIBRARY AND INFORMATION SCIENCE

Degree: B.S.

Affiliated Faculty: Key Interdisciplinary (MSM)

Graduate degree: M.A. in Library and Information Science

Demonstrate a philosophy of librarianship that includes an understanding of intellectual freedom and the role of libraries in society; the library's importance in the promotional process; articulate a philosophy of librarianship that includes an understanding of intellectual freedom and the role of libraries in society; the library's importance in the promotional process;
Two or three non-electronic courses in other segments. 0 s.h.

The balance selected from these:

21:320 Special Libraries 3 s.h.
21:320 Bibliography 3 s.h.
21:521 Advanced Research 3 s.h.
21:525 Technical and Serials Management 3 s.h.
21:264 Medical Librarianship and Bibliography 3 s.h.
21:325 Library Reference, Bibliography, and Research Techniques 3 s.h.
21:365 Porter in Libraries 3 s.h.
21:293 Independent Study 1-3 s.h.

School Library Media Centers

The school library media centers make available to students and teachers a wide range of library and instructional materials in a variety of formats. The work of the media specialists includes activities such as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, producing new materials, offering reading guidance, and providing reference service.

To qualify as school media specialists in Iowa, graduates must hold a valid teaching license and an appropriate media endorsement. The plan of study in the following section describes a program that is designed to prepare students for endorsement as Iowa school media specialists K-12.

State Endorsement for School Media Specialists

Students who complete the program below fulfill state requirements for endorsement as school media specialists K-12. To be admitted to the media endorsement program, a student must hold or be eligible for a teaching license. This program requires completion of 38-39 semester hours. Students completing the media endorsement program fulfill the requirements for a M.A. in Library and Information Science as well. The plan of study is as follows:

11:151 Reference 3 s.h.
21:152 Description and Organization of Materials I 3 s.h.
21:153 Foundations and Collection Development 3 s.h.
21:304 Management of Libraries and Information Centers 3 s.h.
21:333 School Library Media Center Administration 3 s.h.
21:346 Library Materials for Children 3 s.h.
21:263 Library Materials for Adolescents 3 s.h.
21:304 School Library Media Center Practice 3 s.h.
79:320 Introduction to Instructional Design and Technology 3 s.h.
79:135 Survey of Computer Applications to Instruction 3 s.h.
21:240 Research Methods 3 s.h.
79:250 Educational Research Methodology 3 s.h.
79:222 Instructional Strategies 3 s.h.
79:263 Consultation Theory and Practice 3 s.h.
21:420 Multimedia and Interactive Technologies 3 s.h.
79:105 Design and Production of Media for Instruction 3 s.h.

Students who complete 29 of the above semester hours in a designated sequence are eligible for single area specialization. A secondary school media specialist (K-12) or elementary school media specialist (K-6) or secondary school media specialist (7-12) with single area specialization does not require a master's degree.*

Iowa Community College Certification

The school offers a state-approved program for librarian/learning resource specialist in an area vocational school or community college. Students receive this endorsement upon completion of the M.A. with the program listed under "Academic Librarianship" in the section of the Catalog and 79:171 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 enrolling in a joint program works with an advisor 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 set for the two disciplines, and since a core in every career in a law or business school requires a common core, several course of courses from one attempting to study the legal basis of librarianship or the management of the library as a complete organization. Yet another student may choose to seek the benefits a joint program could offer in record management and management information systems.

To enroll in a joint program, students must apply to and be accepted by the School of Library and Information Science and the other unit chosen. Up to 6 semester hours of study may be applied toward the M.A. in library and information science and up to 9 semester hours toward the M.B.A. or 12 semester hours toward the J.D. In addition to these formal joint programs, arrangements can be made for joint programs between departments on an ad hoc basis.

In no case may a student receive two degrees with fewer than 66 semester hours of graduate work, and joint programs usually require substantially more than this.

Facilities and Resources

The School of Library and Information Science is located conveniently in the west wing of the University's Main Library, providing facilities for the various instructional and research activities of the school.

Computer Facilities

A multipurpose computer laboratory provides student access to minicomputers. Equipment is available for CO-0 and小型计算机, used for database searching, use of bibliographic utilities, and use of local software.

In various courses, students learn to write programs, use and create database management systems, conduct database searching, work with word processing and spreadsheet systems, and perform statistical analyses.

Cataloging Lab

The school maintains a reference collection of cataloging tools used in description, organization, and control. The collection is also available to students who need the materials for research or for their course work.

Statewide Reference Service

The school serves as one unit of a state network of libraries. In cooperation with the State Library of Iowa, students provide backup reference service to libraries throughout the state. The school's ability to perform bibliographic verification and to answer reference questions. The service helps students maintain and organize computer training and provides reference experience.

University Libraries

All of the resources of the University Libraries are available to School of Library and Information Science students. 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 60 percent of the collection as well as dossiers containing journal indexes and the periodsicals of the Center for Research Libraries in Chicago. Also available are information resources in compact disc format and accessible to more than 200 million online holdings.

The third floor of the Main Library hosts the government publications area, map, and special collections reading room as well as bound periodicals. The location of the School of Library and Information Science on the floor allows easy access to these frequently used collections.
Other Libraries

Students have access to a variety of libraries through field trips, practice experiences, and personal use. The State Historical Society Library in Iowa City, the Iowa City and Coralville public and school libraries; the Cora, Comet, and Comet College libraries; and the Robert Peiser University 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 an innovative public library model.

Other Resources

Linn County Central, located across the street from the Main Library, houses the Learning Resources Center of the College of Education and West Computing Center. The research 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 books and notebook instructional materials for children in preschool through grade 12. It is especially valuable for students interested in school or public library work.

West 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, data preparation, and course work. Each graduate student is given a limited amount of university time and a small budget to purchase software. All courses are open to the 30-semester-hour program must be approved by the adviser.

Faculty Advising

Each graduate student is assigned an adviser upon admission. Students are encouraged to discuss their course program with their adviser and other faculty members as well. The relatively small size of the program's graduate students facilitates getting to know students individually and to take an active role in each student's development.

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 Libraries and Information Science Student Organization (ILSO) is composed of all students accepting the M.A. program. The Iowa-New England College (INEC) serves as a liaison between students and faculty/administration in matters of curriculum, and as a planning group for student activities and other activities. IEC sends a representative to faculty meetings.

Placement

The school provides active placement assistance to its graduates through personal 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 comprehensive service listing graduates in positions of librarians. The placement distribution for the past three years: 25 percent, librarians 41 percent, public librarians 17 percent, private librarians 34 percent, school librarians 11 percent, and special librarians 10 percent.

Admission

Academic requirements for admission to the M.A. program include: a bachelor's degree from an accredited college or university, with a minimum grade point average of 2.50 on a 4.00 scale, and at least 65 semester hours of study in the liberal arts and sciences; a combined verbal/quantitative score of 1030 or a combined verbal/approached score of 1100 on the Graduate Record Examination (GRE) General Test. Personal qualifications and professional potential are assessed by means of letters of recommendation and an on-campus interview with the student. Should other phases of the application process (other than the GRE) be omitted or incomplete, the admissions committee reserves the right to deny admission.

Foreign students whose native or official language is not English are required to achieve a score of 560 or better on the TOEFL.

Applicants are invited 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: Application must arrive at least 60 days before the test. The Graduate Record Examination (GRE) General Test.

Competed applications should be received by the school by March 1 for the fall semester; November 1 for the spring semester; or February 1 for the summer semester.

Decisions of the admissions committee are announced two to three weeks after each deadline. Late applications are considered if places are still available. Financial aid, however, is often not available for late applicants.

Financial Aid

The School of Library and Information Science provides financial assistance to all students, including a one-quarter time graduate assistantship. 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 may consider the following. The school may approve after completing 12 semester hours of graduate work with a 3.00 grade point average. Prospective students are urged to apply for the 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

2110 Cooperative Education Internship (1-3) Prerequisite: Permission of instructor.

1110 Database Management and Decision Making (3) Prerequisites: Permission of instructor. Techniques and concepts for extracting information from databases and for the manipulation and analysis of large information sets. For credit in a given semester, a maximum of one course in this department may be used.

2115 Information System (3) Prerequisites: Permission of instructor.

1110 Advanced Information Management (3) Prerequisite: Permission of instructor.

1115 Foundations and Competency Development (3) Prerequisite: Permission of instructor.

1120 Introduction to Library Science (3) Prerequisites: Permission of instructor.

1124 Information Literacy for Children (3) Prerequisites: Permission of instructor.

1126 Human Behavior in Libraries (3) Prerequisites: Permission of instructor.

1125 Library Administration (3) Prerequisites: Permission of instructor.

1127 Library Administration (3) Prerequisites: Permission of instructor.

1128 Library Administration (3) Prerequisites: Permission of instructor.

1129 Library Administration (3) Prerequisites: Permission of instructor.

1130 Library Administration (3) Prerequisites: Permission of instructor.

1131 Library Administration (3) Prerequisites: Permission of instructor.

1132 Library Administration (3) Prerequisites: Permission of instructor.

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1177 Library Administration (3) Prerequisites: Permission of instructor.

1178 Library Administration (3) Prerequisites: Permission of instructor.

1179 Library Administration (3) Prerequisites: Permission of instructor.
21:356 Law Librarianship, Bibliography, and Copyrights

Types of law libraries; characteristics of legal literature; sources, organizing literature in libraries; bibliographic tools; research techniques in legal libraries. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:357 Current Topics in Librarianship

Current trends, problems, and techniques in librarianship. Prerequisite: 21:356 or consent of instructor.

21:358 Pharmacy

Selected topics in pharmacy literature, book review projects, and research projects in the field of pharmacy. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:444 Library Materials for Children

Materials available for pre-school children; materials and techniques for the selection of children's materials in public and school libraries. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:445 Information Science

Current trends in information science; development of information retrieval systems; bibliographic control. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:446 Information Storage and Retrieval

The processes involved in the retrieval of information. The nature of information storage and retrieval systems. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:447 Library Automation

The processes involved in automated library systems, including the design, implementation, and evaluation of automated library systems. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:448 Reference Services

Current trends and developments in reference service in public and school libraries. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:449 Advanced Reference Services

Current trends in reference service in public and school libraries. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:450 Descriptive and Organizational Materials

Special problems in the description of special materials, including non-standard materials, and the development of new descriptive and organizational materials. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:513 Technical and Serial Services

Management problems in the provision of technical services in libraries, including serials and technical services. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:514 Government Publications

Selection and classification of government publications, including the identification of government publications. Prerequisites: 21:201 and 21:202, or consent of instructor.

21:515 School Library Media Center

Practicum experience in a school library media center. Prerequisite: 21:201 and 21:202, or consent of instructor.

21:516 Special Libraries and Information Retrieval

Types of special libraries, organization of special libraries, and the selection, evaluation, and use of special libraries. Prerequisites: 21:201 and 21:202, or consent of instructor.

21:517 Language Universals and Linguistic Typology

Students who have a thesis or a thesis at least 9 semester hours of elective courses, exclusive of
English as a Second Language

ESL instruction is offered in three districts, but admitted, programs: the ESL credit support, the Iowa Immigrant English Program (IEP), and the Teaching Assistant Preparation in English Program (TAPE). These programs meet the needs of students who speak any language except English. The ESL credit support courses help students improve their English proficiency so they can complete their studies 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 500 to 599. These courses allow students to increase proficiency in all skills except writing, speaking, listening comprehension, pronunciation, and grammar. Each course meets seven hours of credit, which count toward graduation. Courses are taught by ESL professional staff members and by teaching assistants pursuing advanced degrees in linguistics.

Iowa Immigrant English Program (IEP)

The IEP primarily serves students who have conditional admission or who have not yet achieved English proficiency. The program offers intensive English instruction in 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 to all students—beginning, intermediate, and advanced.

Each student receives twenty hours of classwork instruction each week, plus individual work in the language laboratory. Field trips and cultural and social events are an integral part of the program. Students enrolled in the IEP have full access to all University facilities. The program welcomes international students preparing to enter universities and colleges as well as other students who want to improve their English skills. Instruction is by full-time professional ESL instructors.

Students admitted to the IEP receive a certificate of eligibility (Form 384), 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 language 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 English to complete it are eligible. TAPE courses are open to graduate students who have had the 75% completion exam but who feel space is available. Instruction is by full-time professional ESL instructors.

Facilities

The Department of Linguistics has limited acoustic equipment consisting of a soundproof room, a multi-track tape recorder, and an automatic dictation. A remote terminal and personal computers are also available to students.

The departmental reading room provides a common meeting place for faculty and students. Students have considerable influence on departmental affairs and enjoy a high degree of individual instruction.

Primarily for Undergraduates

103:000 Comparative Education: Internship 3 sh.

103:11 Language and Society 3 sh.

103:12 Language Acquisition 3 sh.

103:13 Language and Formal Meaning 3 sh.

103:15 Elementary Swahili I 3 sh.

103:16 Intermediate Swahili II 3 sh.

103:17 Intensive Latin American Language 3 sh.

103:18 Intermediate Arabic I 3 sh.

103:90 Special Project 1-6 sh.
the Doctor of Philosophy degree. The program helps students achieve a command of theoretical and applied mathematics and obtain a broad understanding of at least one of the following areas: behavior, biology, engineering, medical, physical, or social sciences. The program is flexible; students can concentrate on one of these areas, or they may tailor their studies to meet their own particular needs.

Applicants should be encouraged to take at least one of the following courses in their last year of study:

- Real Analysis
- Advanced Calculus
- Linear Algebra
- Abstract Algebra
- Complex Analysis
- Advanced Probability
- Numerical Analysis

The program is designed to be flexible, and students are encouraged to work closely with their advisors to tailor their studies to their own needs.

Plan of Study

The plan of study for each student is developed in consultation with the advisor. The plan typically includes a combination of coursework and research. The coursework includes courses in mathematics, computer science, and related fields. The research component allows students to develop their own research projects and contribute to the ongoing research in the department.

Undergraduate Programs

Undergraduate students majoring in mathematics can choose from a variety of majors to suit their interests. These majors include:

- Pure Mathematics
- Applied Mathematics
- Financial Mathematics
- Statistics
- Actuarial Science
- Computer Science

Each major has specific requirements and provides a strong foundation in mathematical theory and practice.

Advanced Placement

The Advanced Placement (AP) exam in mathematics allows students to demonstrate their knowledge and skills in mathematics. Students who score well on the AP exam can receive college credit for courses in mathematics.

Bachelor of Arts

The Bachelor of Arts (BA) degree is awarded to students who complete a minimum of 120 credits, including 48 credits in the major field of study. The major field of study is chosen in consultation with an advisor and approved by the department chair.

Bachelor of Science (BS)

The Bachelor of Science (BS) degree is awarded to students who complete a minimum of 124 credits, including 48 credits in the major field of study. The major field of study is chosen in consultation with an advisor and approved by the department chair.

Courses

The courses offered in the Department of Mathematics include:

- Calculus
- Linear Algebra
- Probability and Statistics
- Differential Equations
- Real Analysis
- Abstract Algebra
- Complex Analysis
- Numerical Analysis
- Computer Science

The courses are designed to provide a strong foundation in mathematics and to prepare students for careers in mathematics or related fields. The courses are taught by experienced faculty members who are experts in their fields.

Course Descriptions

The following are brief descriptions of the courses offered in the Department of Mathematics:

- Calculus: This course covers the fundamentals of calculus, including limits, derivatives, and integrals. The course is designed to provide a strong foundation in the concepts and techniques of calculus.
- Linear Algebra: This course covers the fundamentals of linear algebra, including vector spaces, linear transformations, and eigenvalues. The course is designed to provide a strong foundation in the concepts and techniques of linear algebra.
- Probability and Statistics: This course covers the fundamentals of probability and statistics, including probability theory, statistical inference, and regression analysis. The course is designed to provide a strong foundation in the concepts and techniques of probability and statistics.
- Differential Equations: This course covers the fundamentals of differential equations, including ordinary differential equations and partial differential equations. The course is designed to provide a strong foundation in the concepts and techniques of differential equations.
- Real Analysis: This course covers the fundamentals of real analysis, including measure theory, integration, and functional analysis. The course is designed to provide a strong foundation in the concepts and techniques of real analysis.
- Abstract Algebra: This course covers the fundamentals of abstract algebra, including groups, rings, and fields. The course is designed to provide a strong foundation in the concepts and techniques of abstract algebra.
- Complex Analysis: This course covers the fundamentals of complex analysis, including complex functions, complex integration, and conformal mapping. The course is designed to provide a strong foundation in the concepts and techniques of complex analysis.
- Numerical Analysis: This course covers the fundamentals of numerical analysis, including numerical methods for solving equations, numerical linear algebra, and numerical integration. The course is designed to provide a strong foundation in the concepts and techniques of numerical analysis.
- Computer Science: This course covers the fundamentals of computer science, including computer architecture, computer networks, and computer programming. The course is designed to provide a strong foundation in the concepts and techniques of computer science.

The Department of Mathematics offers a wide range of courses to meet the needs of students with different interests and career goals. The courses are designed to provide a strong foundation in mathematics and to prepare students for careers in a variety of fields.

The Department of Mathematics also offers a number of opportunities for students to engage in research. Students can work with faculty members on research projects and contribute to the ongoing research in the department.

The Department of Mathematics is committed to providing a high-quality education to all students. The faculty members are dedicated to helping students achieve their goals and succeed in their studies. The Department of Mathematics is proud to be a leader in the field of mathematics and to provide a strong foundation in the concepts and techniques of mathematics.

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Bachelor of Science

The General Education Requirements for this degree are stated in the College of Liberal Arts Introductory section of the Catalog. Courses that satisfy General Education Requirements, if chosen carefully, may also satisfy the departmental natural science sequence requirement as described below.

Students must complete all department requirements for the B.A., including the approved elective program at least 12 semester hours (see "Required Elective Program," below), that meet the following three requirements:

- completion of C2C:120 Probability and Statistics, C2C:599 Probability and Statistics for the Engineering and Physical Sciences, or another probability and statistics course with 3 semester hours, as approved by the computer science advisor.
- completion of a natural science sequence acceptable toward a major in that science; approved sequences are listed under "Natural Science Sequences," below; and
- completion of two advanced courses selected from the following list.

ADVANCED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2C:51</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>C2C:55</td>
<td>Elementary Numerical</td>
<td>3</td>
</tr>
<tr>
<td>C2C:56</td>
<td>Discrete Structures II</td>
<td>3</td>
</tr>
<tr>
<td>C2C:96</td>
<td>Topics in Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>C2C:99</td>
<td>Honors in Computer Science</td>
<td>(if approved, may be counted only once as an advanced course)</td>
</tr>
<tr>
<td>C2C:122</td>
<td>Advanced Programming Language</td>
<td>3</td>
</tr>
<tr>
<td>C2C:123</td>
<td>Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>C2C:125</td>
<td>Date: Abstractions, Types, and Structures</td>
<td>3</td>
</tr>
<tr>
<td>C2C:127</td>
<td>Introduction to Compiler Construction</td>
<td>3</td>
</tr>
<tr>
<td>C2C:128</td>
<td>Parallel Programming</td>
<td>3</td>
</tr>
<tr>
<td>C2C:129</td>
<td>Introduction to Computation Theory</td>
<td>3</td>
</tr>
<tr>
<td>C2C:144</td>
<td>Database Management</td>
<td>3</td>
</tr>
<tr>
<td>C2C:145</td>
<td>Artificial Intelligence I</td>
<td>3</td>
</tr>
<tr>
<td>C2C:153</td>
<td>Design and Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>C2C:160</td>
<td>Geometric and Physical Modeling</td>
<td>3</td>
</tr>
<tr>
<td>C2C:161</td>
<td>Robotics</td>
<td>3</td>
</tr>
<tr>
<td>C2C:162</td>
<td>Computer Vision</td>
<td>3</td>
</tr>
<tr>
<td>C2C:166</td>
<td>Theory of Graphs</td>
<td>3</td>
</tr>
<tr>
<td>C2C:173</td>
<td>Compiler Construction</td>
<td>3</td>
</tr>
<tr>
<td>C2C:180</td>
<td>Fundamentals of Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>C2C:181</td>
<td>Formal Methods in Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>C2C:182</td>
<td>Software Engineering Project</td>
<td>3</td>
</tr>
<tr>
<td>C2C:193</td>
<td>Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>C2C:194</td>
<td>Data Analysis in Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>C2C:195</td>
<td>Advanced Software Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

2C:196 Topics in Computer Science (if repeated, may be counted only once as an advanced course)

2C:198 Individual Programming Projects (may be repeated, may be counted only once as an advanced course)

C2C:179 Numerical Analysis
- Nonlinear Equations and Approximation Theory | 3 s.h.
- Differential Equations and Linear Algebra | 3 s.h.
- Numerical Techniques and Applications | 3 s.h.
- Numerical Solution of Partial Differential Equations | 3 s.h.

These courses cannot be taken pass/no-credit.

Requisite Elective Program

For the B.A. or B.S. students must take at least 12 semester hours of electives in a thematic area with potential computing application, such as business, engineering, physics, or another field in which they plan to apply the computer science degree. These courses must be approved by the student's computer science advisor. Some courses may be taken pass/no-credit. See the Computer Science Undergraduate Handbook for more details and examples of approved elective programs.

Honors

Any University of Iowa student with a cumulative grade-point average of 3.50 or higher may join the University Honors Program. Interested students should contact the honors program office in the Starchbaum House Honors Center.

To graduate with honors in computer science, students complete 4.0 semester hours of C2C:99 Honors in Computer Science and attain an acceptable honors thesis. The course C2C:99 can count as one of both the advanced courses for the B.S. and C2C: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 plan a program for the work. Students are responsible for finding a faculty member willing to supervise their honors project. See the Computer Science Undergraduate Handbook for more details.

Minor

The minor in computer science requires a minimum of 20 semester hours of computer science courses, at least 12 of which must be taken in courses in Computer Science: 22C:196, 22C:198, 22C:210, 22C:211, 22C:290, 22C:391, and 22C:392, 22C:492, 22C:493, 22C:494, 22C:495. At least 8 hours must be taken in courses at the 300 level or above. Required courses are 22C:196, 22C:198, 22C:210, 22C:211, 22C:290, 22C:391, 22C:392, 22C:492, 22C:493, 22C:494, 22C:495, 22C:496, 22C:497, 22C:498, 22C:499.

Graduate Programs

Master of Science

All candidates for the M.S. in computer science must complete the following courses or acquire equivalent proficiency:

22C:110 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:124 Introduction to Computation Theory | 3 s.h.
22C:125 Three advanced 22C courses (except software engineering, software engineering) | 9 s.h.
22C:126 Three advanced 22C courses (except software engineering, software engineering) | 9 s.h.
22C:127 Required Graduate Course (not counting 22C:126) | 3 s.h.
Total | 30 s.h.
Courses outside computer science are also elective to support the student's career goals and may be approved by the advisor. They are intended to broaden the student's background through study of a new area or to extend students' work outside of computer science.

Computer science courses should be selected according to students' special area interests, but they also should provide a broad range of experience and competence in computer science. In particular, some experience with problem-solving, extensive programming should be included.

M.S. candidates may elect to write a thesis, and with their advisor's consent may apply up to 6 semester hours of thesis credit toward the minimum total of 30 semester hours of credit required for the M.S.

The M.S. final examination consists of either an oral defense of the thesis or a written comprehensive examination that assesses completion of 22C:116 Advanced Operating Systems, 22C:123 Advanced Operating Organization and Architecture, 22C:123 Programming Language Foundations, and 22C:135 Introduction to Computation Theory. The written examination attempts to address the interface among these four courses as well as the major topics in each course. Students should consult the Computer Science Graduate Handbook for more information.

Applicants for admission to the M.S. program in computer science usually are required to have a background in mathematics or the sciences, and their background may be assessed at the time of application.

In addition, the course work in computer science, students must complete at least three courses, with grades of A or B, in one of these areas: operating systems, algorithms, logic and set theory, operations research, statistics, and probability, and numerical analysis.

At least one course in the core area must be at the 200 advanced level, except in statistics and probability, where the advanced course may be at the 100 level.

Doctor of Philosophy (Ph.D.)

The department is highly selective in admitting doctoral students and usually considers only applicants with a grade-point average above 3.50.

All students are required to complete at least 72 semester hours of graduate work, including a thesis. Students need not have a master's degree to begin Ph.D. programs, and they need not acquire one in order to be eligible for the Ph.D. Course requirements or equivalent proficiency for the doctorate include the following:

22C:116 Advanced Operating Systems 3 s.h.
22C:117 Advanced Operating Organization and Architecture 3 s.h.
22C:123 Programming Language Foundations 3 s.h.
22C:135 Introduction to Computation Theory 3 s.h.
22C:135 Design and Analysis of Algorithms I 3 s.h.

Students must remain at least 18 semester hours of 200-level computer science core course work to advance to 22C:200 Research for the Ph.D.

In addition to the course work in computer science, students must complete at least three courses, with grades of A or B, in one of these core areas: algorithms, computer organization and architecture, and graphics.

Graduate School Courses

Competence and experience in the use of a digital computer in problem solving is useful and often requisite to advanced study and research in many disciplines. For most students, the two-semester sequence, 22C:110 Introduction to Programming with Pascal and 22C:167 Programming Techniques and Data Structures, is recommended. Students in fields in which other programming languages are used may find 22C:100 Introduction to Computing with FORTRAN, 22C:100 Programming with CONL, or 22C:110 Programming with C more appropriate.

Courses

Primary for Undergraduates

22C:08 Computer Education Teaching Assignment 0 s.h.
22C:10 Computer Operation with FORTRAN 2 s.h.
22C:10 Computer Operation with COBOL 2 s.h.
22C:10 Computer Operation with C 2 s.h.
22C:10 Computer Operation with BASIC 2 s.h.
22C:10 Introduction to Programming with FORTRAN 3 s.h.
22C:10 Introduction to Programming with COBOL 3 s.h.
22C:10 Introduction to Programming with C 3 s.h.
22C:10 Introduction to Programming with BASIC 3 s.h.
REQUIREMENTS
The program must include a two-semester sequence from Group I, or any two courses chosen from one of the clusters listed in Group II.

Group I
22M.101/120 Introduction to Ordinary Differential Equations/Continuous Mathematics
22M.102/121 Introduction to Ordinary Differential Equations/Introduction to Difference Equations
22M.115/116 Introduction to Algebra I/II
22M.120/121 Abstract Algebra I/II
22M.37/37 Introduction to Linear Algebra I/II
22M.127/128 Foundations of Set Theory/Foundations of Logic
22M.220/160 Calculus III/Introduction to Differential Geometry
22M.118/119 Complex Variables/Complex Variables: Applications
22M.110/120 Elements of Group Theory/Algebra I
22M.70/119 Functions of One Variable/Functions of One Variable in Mathematics
22S.153/154 Introduction to Probability/Introduction to Mathematical Statistics
22S.153/154 Introduction to Probability/Introduction to Stochastic Processes

Group II
22M.172/171/172/170 Fundamental Properties of Space and Functions/Elementary General Topology/Topics in Topology

Capable students are encouraged, with the approval of their advisors, to substitute higher-level courses in the same area for any of these requirements. The student handbook offers further advice on the selection of courses.

Program B Requirements
This program is intended primarily for students seeking secondary school teaching certification. See “Curriculum and Instruction” in the College of Education section of the Catalog.

22M.25-26 Calculus I/II
22M.35-36 Engineering Calculus I/II
22M.45-46 Accelerated Calculus I/II

(Advanced placement credit is accepted for all or part of this requirement)

22M.27 Introduction to Linear Algebra
22M.28/29 Abstract Algebra I/II
22M.70 Elements of Group Theory

22M.55 Fundamental Properties of Spaces and Functions
22M.70 Foundations of Geometry
22S.16 Introduction to Programming with Pascal
22S.120 Probability and Statistics
22S.153/154 Introduction to Probability/Introduction to Mathematical Statistics
22M.90 Introduction to Discrete Mathematics
22M.151/152 Discrete Mathematical Models
22S.152 Theory of Graphs

One additional upper-level course in mathematics, exclusive of 22M.61 and 22M.105; the following courses are recommended for this requirement:

22M.23 Elementary Numerical Analysis
22M.90 Introduction to Discrete Mathematics
22M.107 Theory of Mathematics
22M.151 Discrete Mathematical Models
22M.152 Theory of Graphs

The mathematics requirement also may be satisfied by any of the following computer science and statistics courses:

22C.17 Programming Techniques and Data Structures
22C.21 Algorithms and Data Structures
22C.135 Introduction to Computer Theory
22C.153 Design and Analysis of Algorithms
22C.152 Regression Analysis
22C.153 Introduction to Probability
22C.154 Introduction to Mathematical Statistics
22C.156 Applied Time Series Analysis
22C.164 Introduction to Discrete Probability Models
22S.167 Introduction to Stochastic Processes

Total: 39-41 s.h.

Bachelor of Science
Program A Requirements
Program A requirements for the B.S. are the same as those for the B.A. program A, except that two additional courses in mathematics numbered 22M.107 or higher, excluding 22M.195, are required. The following computer science and statistics courses also may be used to fulfill this requirement:

22C.135 Introduction to Computer Theory
22C.153 Design and Analysis of Algorithms
22M.152 Regression Analysis
22C.153 Introduction to Probability
22C.154 Introduction to Mathematical Statistics
22S.156 Applied Time Series Analysis

225.164 Introduction to Discrete Probability Models
225.167 Introduction to Stochastic Processes

Program B Requirements
Program B requirements for the B.S. are the same as those for the B.A. program B, except that two additional courses in mathematics numbered 22M.107 or higher are required. The statistics and computer science courses listed in Program A requirements for the B.S. also may be used to fulfill this requirement.

General Education Requirements
Candidates must satisfy the College of Liberal Arts General Education Requirements and are required to select CER courses that use mathematics.

Other Requirements
Additional degree requirements concerning minor credits, grade-point average, and so forth, are discussed in the College of Liberal Arts section of the Catalog.

At least 15 semester hours of post-calculus courses applied toward the major requirements must be taken at The University of Iowa.

Double Major in the Division of Mathematical Sciences

Students wishing to combine a degree in mathematics with one in computer science, statistics, or actuarial science must satisfy the requirements of program A or program B. Both programs may be taken by the same—B.A. or B.S. The College of Liberal Arts requires that students seeking a mathematics double major must earn a minimum of 50 semester hours in courses taken outside the division.

Honors
Any undergraduate student with a cumulative grade-point average of 3.20 or higher from the University Honors Program, interested students should contact the honors office in the Storrs Hall House Honors Center. In order to graduate with honors in mathematics, a student must be registered in 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 a thesis, an honors project, or some approved advanced course work. A student planning to do an honors project is responsible for finding a faculty member willing to supervise the project. Students interested in writing a thesis or an honors project may visit the project.

Students interested in writing a thesis or an honors project may visit the project.
Minor

The minor in mathematics requires:

A minimum of 15 semester hours credit earned in Department of Mathematics courses, at least 12 of these 15 semester hours must be taken at The University of Iowa in advanced courses, neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work, advanced courses are 22M.27, 22M.28, and all courses numbered 22M-50 or higher except 22M.81, 22M.94, and 22M.195.

A grade-point average of at least 2.00 in all work attempted in the Department of Mathematics.

No course counted toward the minor may be taken pass/credit.

Graduate Programs

Master of Science

Students earn the M.S. through courses and comprehensive examinations. There is no thesis.

There are four programs leading to an M.S. in mathematics. The requirements (courses and comprehensive examination areas) may be modified with the consent of the department.

Program I

This program prepares students for further study of pure and applied mathematics and for employment in government and industry. Students must take a two-semester sequence in analysis (either 22M.115-116 or 22M.210-211); a course in topology (22M.132); and a two-semester sequence in abstract algebra (either 22M.120-121 or 22M.205-206). The student must take two comprehensive examinations, one on the analysis and topology sequence and the other on the algebra sequence.

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the Division of Mathematical Sciences.

Mathematics

Any course numbered 22M.110 or higher, or equivalent.

Computer Science

22C.122 Advanced Computer Organization and Architecture
22C.133 Programming Language Foundations
22C.135 Introduction to Computer Theory
22C.145 Artificial Intelligence
Any course numbered 22C.200 or higher

Statistics

22S.153 Introduction to Probability
22S.154 Introduction to Mathematical Statistics
22S.157 Introduction to Stochastic Processes
Any course having any of the above three courses as prerequisites.
Any course numbered 22S.200 or higher

Program II

This program is designed for secondary school teachers. The requirements are those in program I or II, except that two mathematics education courses are required. All mathematics courses numbered 22M-100 or higher may be used to satisfy the 24-semester-hour requirement. Students are encouraged to consult with mathematics education faculty when planning their courses of study.

Program III

This program focuses on applied mathematics. It requires several courses and two comprehensive examinations, one on differential equations (22M.144, 22M.142) and one on numerical analysis/optimization (22M.176, 22M.171, 22M.174). The required courses are:

22M.144 Introduction to Partial Differential Equations I
22M.142 Intermediate Differential Equations
22M.140 Continuous Mathematical Models
or 22M.151 Discrete Mathematical Models
22M.174 Optimization Techniques
22M.170 Numerical Analysis: Nonlinear Equations and Approximation Theory
22M.171 Numerical Analysis: Differential Equations and Linear Algebra

Two additional courses from the following:

22M.118 Complex Variables
22M.127 Matrix Theory
22M.140 Continuous Mathematical Models
22M.151 Discrete Mathematical Models
22M.152 Theory of Graphs
22C.140 Advanced Operating Systems
22C.153 Design and Analysis of Algorithms I
22S.153 Introduction to Probability
22S.154 Introduction to Mathematical Statistics
22S.167 Introduction to Stochastic Processes

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the Division of Mathematical Sciences. Students who have courses or credit equivalent to the required courses may request substitute electives.

Program IV

This program is designed for nondepartmental students working toward Ph.D. degrees in areas that require mathematical knowledge. The program has no required courses. Course distribution requirements are the same as those for program I.

Students in program IV are considered to have passed the comprehensive examination for the master's in mathematics if they have maintained a minimum grade-point average of 3.00 in all mathematics courses taken for the master's in mathematics and have successfully completed the Ph.D. comprehensive examination in the chosen area.

Students in program IV are assigned a mathematics advisor, who works with them and their major advisor to plan an appropriate curriculum for the master's in mathematics. A suitable program of study should be approved by a mathematics advisor before the student takes the Ph.D. comprehensive examination, and a member of the mathematics faculty should sit on the Ph.D. comprehensive examination committee.

Admission

Admission to an M.S. program (II) is based on a combination of undergraduate course work and grades, letters of recommendations, and GRE General Test scores (also TOEFL scores for foreign students). The following guidelines are current although exceptions may be made.

Numerical standards are reset every year or two.

Students must have completed work in an undergraduate mathematics program equivalent to the bachelor's degree offered by the mathematics department. Students whose preparation does not meet this requirement may be admitted conditionally and are asked to take specific courses that cover the deficiencies.

Students must have an undergraduate grade-point average of at least 2.80. Graduates may be considered when evaluating grades; grades of C or lower in mathematics courses need to be backed up by A grades.

Students must submit three letters of recommendation to support their application.

Students must score at least 530 on the quantitative section of the GRE General Test. Applicants are encouraged to submit scores for the mathematics examination as well.

Applicants who lack financial support whose credentials may show weak areas.

Foreign students are required to demonstrate their competence in English. Normally this will be shown 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 "applied" mathematics. It cooperates in interdisciplinary doctoral programs with the College of Education and the Program in Applied Mathematical Sciences.

A Ph.D. student in mathematics must satisfy the following requirements for course work (credits and breadth), examinations, foreign language, and dissertation.

At least 72 semester hours of graduate credit is required and at least three years of graduate residence, including at least one year at The University of Iowa. While there are no individual required courses, several are designated as preparatory for the Ph.D. comprehensive examination (see below). Students should plan these high priority.

To further encourage mathematical breadth, students must take 18 semester hours of graduate credit in regular course equivalent or in 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, all taken over a two-week period. The three areas are chosen by the student from the department’s list of comprehensive examination areas, as follows: at least two of algebra, analysis, logic, and topology; and at least one more of the preceding or partial differential equations. For each comprehensive area, there is a two semester, 200-level course sequence designated as preparatory, although exams may differ from course content. One grade (pass, fail, conditional pass) is given in the overall three-part examination by a committee that usually consists of six faculty members.

Candidates also take the 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, or passing an oral examination approved by the mathematics department graduate committee. The demonstration of language competence must take place after the student has enrolled in graduate school.

The most distinctive aspect of a Ph.D. is the thesis. The department expects the Ph.D. to be an original mathematical work capable of contents and writing quality in that found in standard published research journals. The thesis is written under the supervision of a committee chosen at the student’s faculty, presumably the student’s advisor.

Admission

Admission to the Ph.D. program is based on a combination of maturity, potential, and the ability to benefit from graduate work. Admission to the master’s program in this section is not possible. The department generally requires a B average and scores for both GRE and TESOL scores for admission. Undergraduate or graduate course average of at least 3.00, CBE General Test Quantitative score of at least 700, TOEFL score of at least 575. Often new graduate students are admitted as masters even if they intend to go on for a Ph.D.

Courses

Undergraduate: Lower Division

These courses are not open to graduate students except by special arrangement with the department chair.

200-300 Level Mathematics 00 1.

200-400 Level Mathematics 00 2.

200-500 Level Mathematics 00 3.

200-600 Level Mathematics 00 4.

200-700 Level Mathematics 00 5.

200-800 Level Mathematics 00 6.

200-900 Level Mathematics 00 7.

300-400 Level Mathematics 00 8.

300-500 Level Mathematics 00 9.

300-600 Level Mathematics 00 10.

300-700 Level Mathematics 00 11.

300-800 Level Mathematics 00 12.

300-900 Level Mathematics 00 13.

400-500 Level Mathematics 00 14.

400-600 Level Mathematics 00 15.

400-700 Level Mathematics 00 16.

400-800 Level Mathematics 00 17.

400-900 Level Mathematics 00 18.

500-600 Level Mathematics 00 19.

500-700 Level Mathematics 00 20.

500-800 Level Mathematics 00 21.

500-900 Level Mathematics 00 22.

600-700 Level Mathematics 00 23.

600-800 Level Mathematics 00 24.

600-900 Level Mathematics 00 25.

700-800 Level Mathematics 00 26.

700-900 Level Mathematics 00 27.

800-900 Level Mathematics 00 28.

Elementary Topics of General Interest

These courses are not open to graduate students except by special arrangement with the department chair.

200-400 Level Mathematics 00 29.

200-500 Level Mathematics 00 30.

200-600 Level Mathematics 00 31.

200-700 Level Mathematics 00 32.

200-800 Level Mathematics 00 33.

200-900 Level Mathematics 00 34.

300-400 Level Mathematics 00 35.

300-500 Level Mathematics 00 36.

300-600 Level Mathematics 00 37.

300-700 Level Mathematics 00 38.

300-800 Level Mathematics 00 39.

300-900 Level Mathematics 00 40.

400-500 Level Mathematics 00 41.

400-600 Level Mathematics 00 42.

400-700 Level Mathematics 00 43.

400-800 Level Mathematics 00 44.

400-900 Level Mathematics 00 45.

500-600 Level Mathematics 00 46.

500-700 Level Mathematics 00 47.

500-800 Level Mathematics 00 48.

500-900 Level Mathematics 00 49.

600-700 Level Mathematics 00 50.

600-800 Level Mathematics 00 51.

600-900 Level Mathematics 00 52.

700-800 Level Mathematics 00 53.

700-900 Level Mathematics 00 54.

800-900 Level Mathematics 00 55.
Bachelor of Science in Statistics

Applied Statistics
This program is designed to prepare students for careers in applied statistics or for graduate study in statistics or other disciplines that incorporate statistical tools. The required courses in the program are:

- **Fall Semester:**
  - 223:25 Calculus I 4 s.h.
  - 223:35 Engineering Calculus I 4 s.h.
  - 223:45 Accelerated Calculus I 4 s.h.
  - 10:1:Riemann I 4 s.h.

- **Spring Semester:**
  - 223:26 Calculus II 4 s.h.
  - 223:36 Engineering Calculus II 4 s.h.
  - 223:46 Accelerated Calculus II 4 s.h.
  - 10:1:Riemann II 4 s.h.

Sophomore Year

- **Fall Semester:**
  - 223:27 Introduction to Linear Algebra 4 s.h.
  - 6E1:1 Principles of Microeconomics 3 s.h.
  - 223:17 Introduction to Computing with FORTRAN or 1 s.h.
  - 223:16 Introduction to Programming with Pascal 4 s.h.

- **Spring Semester:**
  - 223:28 Calculus III 4 s.h.
  - 6E1:2 Principles of Macroeconomics 3 s.h.
  - 223:120 Probability and Statistics 4 s.h.

Junior Year

- **Fall Semester:**
  - 223:153 Introduction to Probability 3 s.h.
  - 223:177 Numerical Analysis for Actuarial 3 s.h.
  - 223:180 Mathematics of Finance 3 s.h.

- **Spring Semester:**
  - 223:150 Methods of Statistical Inference 3 s.h.
  - 223:154 Introduction to Mathematical Statistics 3 s.h.
  - 223:181 Life Contingencies I 3 s.h.

Senior Year

- **Fall Semester:**
  - 223:175 Risk Theory and/or 3 s.h.
  - 223:182 Life Contingencies II 3 s.h.

- **Spring Semester:**
  - 223:176 Actuarial Mathematics 3 s.h.
  - 223:183 Life Contingencies III 3 s.h.

Mathematical Statistics
This program is designed to prepare students for graduate study in statistics. The required courses in the program are:

- **Fall Semester:**
  - 223:25-26 Calculus I-II 8 s.h.
  - 223:35-36 Engineering Calculus I-II 8 s.h.
  - 223:46 Accelerated Calculus I-II 8 s.h.
  - 223:29 Introduction to Linear Algebra 4 s.h.
  - 223:39 Introduction to Mathematical Statistics 4 s.h.
  - 223:50 Fundamental Properties of Random Variables 4 s.h.
  - 223:115 Introduction to Probability 3 s.h.
  - 223:153 Introduction to Mathematical Statistics 3 s.h.

At least three of the following:

- 223:126 Regression Analysis 3 s.h.
- 223:127 University of Iowa Actuarial 3 s.h.

Graduate Programs

Master of Science
Each M.S. candidate has a committee of four members, which is responsible for recommending action on the candidate's degree. For nonthesis programs, the committee's recommendation usually is based on two written examinations on topics covered in the required courses. For thesis programs, the committee's final recommendation usually is based on an oral defense of the thesis, although it may be based on a single written examination on topics covered in the candidate's program of study.

With the approval of certain two-course sequences approved by the department, graduate students may not include on their plan of study any course that they also took as an undergraduate student at The University of Iowa. When approved two-course sequences are repeated, the second course of the sequence

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>223:158</td>
<td>Analysis and Design of Experiments I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>223:159</td>
<td>Analysis and Design of Experiments II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>223:160</td>
<td>Introduction to Discrete Probability Models</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>223:161</td>
<td>Introduction to Stochastic Processes</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
may appear on the plan of study. At the present time, the only approved two-course sequences are 225:153-154, 225:175-176, and 225:182-183.

Artificial Science
Eleven graduate courses are required; they must include:

- 225:153 Introduction to Probability 3 s.h.
- 225:154 Introduction to Mathematical Statistics 3 s.h.
- 225:175 Stochastic Processes 3 s.h.
- 225:177 Numerical Analysis for Scientists 3 s.h.
- 225:180 Mathematics of Finance 3 s.h.
- 225:181 Life contingencies I 3 s.h.
- 225:182 Life contingencies II 3 s.h.
- 225:190 Casualty Actuarial Mathematics 3 s.h.
- 225:191 Life Contingencies II 3 s.h.
- *225:193 Casualty Actuarial Topics 3 s.h.
- 225:194 Life Actuarial Topics 3 s.h.

The examination may be any course in statistics, management science, or finance taught by a faculty.*In certain cases, with consent of adviser, a different course may be substituted for 225:179 or 181.

Theoretical Statistics and Probability

- 225:152 Introduction to Analysis I 3 s.h.
- 225:153 Introduction to Probability 3 s.h.
- 225:154 Introduction to Mathematical Statistics 3 s.h.
- 225:167 Introduction to Stochastic Processes 3 s.h.
- 225:201 Theory of Statistics I 3 s.h.

At least two of these:

- 225:164 Introduction to Discrete Probability Models 3 s.h.
- 225:172 Topics in Statistics 3 s.h.
- 225:202 Theory of Statistics II 3 s.h.
- 225:230 Introduction to the Theory of Nonparametric Statistics 3 s.h.
- 225:254-255 Advanced Inference III 6 s.h.
- 225:282 Life Models 4 s.h.
- 225:354 Nonparametric Analysis 4 s.h.
- 225:264 Theory of Probability I 6 s.h.
- 225:265 Theory of Probability II 6 s.h.

Applied Statistics

WON’T TAKE THESIS

- 225:152 Regression Analysis 3 s.h.
- 225:153 Introduction to Probability 3 s.h.
- 225:154 Introduction to Mathematical Statistics 3 s.h.
- 225:155 Analysis and Design of Experiments I 3 s.h.
- 225:173 Data Analysis 3 s.h.

At least two of the following:

- 225:156 Applied Time Series Analysis 3 s.h.
- 225:156 Application of Multivariate Statistical Techniques 4 s.h.
- 225:156 Analysis and Design of Experiments II 3 s.h.

The remainder of the program consists of at least two additional courses numbered 225:153 or above, and other courses approved by the student’s adviser.

Experience in a computer language such as FORTRAN is required. If students satisfy the requirement by taking a course, that course may not be counted toward the M.S. semester-hour requirement.

The applied statistics program is designed to be flexible, so that students may concentrate on an area of application in addition to the required statistics courses. Students should work closely with their adviser in developing progress of study tailored to their specific interests. If the student’s interest in a particular application area is strong, a program in another department may be more appropriate; for example, education measurement and statistics (education), operations research (industrial and management engineering), and biostatistics (preventive medicine and environmental health).

WON’T TAKE THESIS

- 225:152 Introduction to Probability 3 s.h.
- 225:154 Introduction to Mathematical Statistics 3 s.h.

At least two of the following:

- 225:152 Regression Analysis 3 s.h.
- 225:156 Applied Time Series Analysis 3 s.h.
- 225:156 Analysis and Design of Experiments I 3 s.h.
- 225:161 Application of Multivariate Statistical Techniques 4 s.h.
- 225:156 Analysis and Design of Experiments II 3 s.h.

The remainder of the program consists of at least two additional courses numbered 225:153 or above, and other courses approved by the adviser. With the adviser’s approval, courses in other fields related to the thesis may be substituted.

Experience in a computer language such as FORTRAN is required. If students satisfy the requirement by taking a course, that course may not be counted toward the M.S. semester-hour requirement.

The applied statistics program is designed to be flexible, so that students may concentrate on an area of application in addition to the required statistics courses. Students should work closely with their adviser in developing progress of study tailored to their specific interests. If the student’s interest in a particular application area is strong, a program in another department may be more appropriate; for example, education measurement and statistics (education), operations research (industrial and management engineering), and biostatistics (preventive medicine and environmental health).

Doctor of Philosophy

To satisfy the course requirements for a Ph.D. in statistics, students must successfully complete:

- 225:154 Analysis and Design of Experiments I 3 s.h.
- 225:156 Application of Multivariate Statistical Techniques 3 s.h.
- 225:175 Data Analysis 3 s.h.
- 225:203 Linear Model 6 s.h.
- 225:204 Theory of Probability I 3 s.h.
- 225:205 Theory of Probability II 3 s.h.

At least 24 semester hours of any combination of the following:

- 225:154 Analysis and Design of Experiments I 3 s.h.
- 225:156 Application of Multivariate Statistical Techniques 3 s.h.
- 225:173 Data Analysis 3 s.h.
- 225:203 Linear Model 6 s.h.
- 225:204 Theory of Probability I 3 s.h.
- 225:205 Theory of Probability II 3 s.h.
The department requires a grade-point average of at least 3.50 for courses that appear on the plan of study. In addition, a grade-point average of at least 3.50 is required on courses used to fulfill the requirements stated that a certain number of courses be advanced in a list, the student may choose which courses are to be used in the grade-point average calculation.

Well-prepared students entering with a B.S. require three years of course work to complete the doctoral program. They take 225.201 and 225.202 in the first year. Less well-prepared students need to take 225.153, 225.154, 225M.115, and 225M.116 in the first year, adding one year to the program.

In addition to the above requirements, for each semester graduate students are required to register for 6 or more semester hours. Their registration must include at least one course at least of 2 semester hours offered by the Department of Statistics and Actuarial Science other than 225.190. Individual Study, 225.197 Readings in Statistics and/or in Actuarial Science, or 225.299 Reading Research.

During the graduate program, students may take course work or seminars in other departments to achieve certain ancillary goals of the doctoral in statistics. These goals are to relate an area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and be able to respond in personal contacts with the scientific community.

Students are required to include in their programs a component that attests experience in either the industrial or research environment. Students who wish to be considered for financial resources for the first year of study should request a qualifying analysis no later than the spring semester of their second year. The qualifying procedure is discussed in the departmental graduate handbook.

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. Topics are generally covered in 225.201, 225.202, 225.203, 225.255, 225.256, and 225.264. Study guides for the core examination are available from the department.

A program that does not conform to the prescribed examinations but of high quality may be approved by the department chair.

Special Features

Because statisticians often are teamed with other scientists in research projects, it is important that they have an understanding of the physical sciences, the biological sciences, and the social sciences. The department forms and maintains a close working relationship with the Office of University Research and through it coordinates activities 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 part-time work. Although the majority of Statistical Consulting Center projects involve statistical problems arising in these research conducted by students in other departments, the center also makes significant involvement in large research projects and proposal writing.

Courses

Primary for Undergraduates

Students may not receive credit for a Department of Statistics and Actuarial Science course numbered below 300 if they have previously received credit for a course numbered above 110. Students may receive credit in only one of these courses: 225.222, 225.224, or 225.225; however, students who take 225.223 before 225.224 may receive credit for both.

225.222 Statistics and Finance

3 h. Statistical ideas, data collection, probability, linear algebra, and Markov, point, and measure space, or statistical inference. CSCI 112, 116, or 117 required. Prerequisite: 225.197 or equivalent in business administration.

225.224 Probability and Statistics

3 h. Descriptive statistics, statistical paradoxes, linear algebra, and Markov, point, and measure space, or statistical inference. CSCI 112, 116, or 117 required. Prerequisite: 225.197 or equivalent in business administration.

225.226 Elementary Statistics and Finance

3 h. Descriptive statistics, statistical paradoxes, linear algebra, and Markov, point, and measure space, or statistical inference. CSCI 112, 116, or 117 required. Prerequisite: 225.197 or equivalent in business administration.

225.228 Probability and Statistics for the Business and Physical Sciences

3 h. Descriptive and inferential statistics, analysis of the variance, data analysis, and Markov, point, and measure space, or statistical inference. CSCI 112, 116, or 117 required. Prerequisite: 225.197 or equivalent in business administration.

225.229 Probability and Statistics for the Engineering and Physical Sciences

3 h. Descriptive and inferential statistics, analysis of the variance, data analysis, and Markov, point, and measure space, or statistical inference. CSCI 112, 116, or 117 required. Prerequisite: 225.197 or equivalent in business administration.

225.235 Introduction to Statistical Methods

3 h. Prerequisite: 225.201, 225.202, 225.203, 225.255, 225.256, or 225.264. Study guides for the core examination are available from the department.

225.240 Design and Analysis of Experiments in the Behavioral Sciences

Prerequisite: 225.215 or equivalent. See 225.155.

225.242 Intermediate Statistical Methods

Prerequisite: 225.153 or equivalent. See 225.155.

225.100 Methods of Statistical Inference

3 h. Exploration, analysis, and inference; one and two sample methods; nonparametric methods. Prerequisite: 225.197 or 225.153.

225.101 Applied Statistics

3 h. Multiple linear regression models, logit analysis, analysis of variance, experimental design, statistical inference. Prerequisite: 225.240 or equivalent. See 225.197.

225.102 Regression Analysis

3 h. Multiple linear regression models, logit analysis, analysis of variance, experimental design, statistical inference. Prerequisite: 225.240 or equivalent. See 225.197.

225.153 Multivariate Analysis

3 h. Theory, application of multivariate models, including covariance and correlation matrices, discriminant analysis, principal component analysis. Prerequisite: 225.150 or equivalent. See 225.197.

225.155 Introduction to Mathematical Statistics

3 h. Sampling distributions, confidence and interval estimation, hypothesis testing, estimation, regression and correlation, design of experiments. Prerequisite: 225.150 or equivalent.

225.156 Applied Time Series Analysis

3 h. Time series models, autoregressive models, moving average models, intervention models, forecasting, spectral analysis, multivariate systems, models, regression, analysis of variance. Prerequisite: 225.150 or equivalent. See 225.197.

225.161 Categorical and Regression Analysis

3 h. Analysis of variance, design of experiments, regression analysis of categorical data, regression analysis of complex experimental designs. Prerequisite: 225.150 or equivalent. See 225.197.

225.165 Analysis of Design I

3 h. Single and multiple analysis of variance, fixed and random effects, repeated measures designs, nested, factorial and fractional factorial designs. Prerequisite: 225.150 or equivalent. See 225.197.

225.166 Analysis of Design II

3 h. Multiple analysis of variance, repeated measures designs, nested, factorial and fractional factorial designs. Prerequisite: 225.150 or equivalent. See 225.197.

225.170 Design of Experiments

Prerequisite: 225.150 or equivalent. See 225.197.

225.181 Application of Multivariate Statistical Techniques

Prerequisite: 225.155 or equivalent. See 225.197.

225.190 Advanced Statistical Analysis

Prerequisite: 225.155 or equivalent. See 225.197.

225.215 Financial Mathematics

3 h. Financial markets, arbitrage, forward contracts, option markets, real options, option pricing. Prerequisite: 225.150 or equivalent. See 225.197.

For Undergraduates and Graduates

225.000 Cooperative Internship Experience

Prerequisite: 225.201, 225.202, 225.203, 225.255, 225.256, and 225.264. Study guides for the core examination are available from the department.

A program that does not conform to the prescribed examinations but of high quality may be approved by the department chair.

Special Features

Because statisticians often are teamed with other scientists in research projects, it is important that they have an understanding of the physical sciences, the biological sciences, and the social sciences. The department forms and maintains a close working relationship with the Office of University Research and through it coordinates activities 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 part-time work. Although the majority of Statistical Consulting Center projects involve statistical problems arising in these research conducted by students in other departments, the center also makes significant involvement in large research projects and proposal writing.
220-117 Numerical Analysis for Scientists
3 s.h.
Mathematical analysis of data, description of algorithms, numerical integration, solution of nonlinear equations. Prerequisite: 118.

220-179 Cellular and Molecular Biology
3 s.h.
An introduction to the cell, cell structure, cell functions, the cell cycle, endosymbiosis, molecular biology, genetic principles. Prerequisite: 119.

220-179 Cellular and Molecular Biology
3 s.h.
An introduction to the cell, cell structure, cell functions, the cell cycle, endosymbiosis, molecular biology, genetic principles. Prerequisite: 119.

220-181 Life Contingencies I
3 s.h.
Life insurance and annuities, life contingencies and insurance, risk theory, and life insurance. Prerequisite: 119 or consent of instructor.

220-182 Life Contingencies II
3 s.h.
Continuation of 220-181: life insurance and annuities, risk theory, and life insurance. Prerequisite: 220-181.

220-183 Life Contingencies III
3 s.h.
Advanced topics in life contingencies. Prerequisite: 220-182.

220-184 Actuarial Exam Preparation
1 s.h.
May be repeated.

220-187 Life Actuarial Theory
3 s.h.
May include construction of mortality tables, graduation, contingency factors, premium, funding principles, and applications. Consent of instructor required.

220-195 Subfield Study
1-3 s.h.
Course of study varies. Prerequisite: 220-190.

220-195 Reading in Statistics and Actuarial Science
1 s.h.
Course of study varies. Prerequisite: 220-190.

220-201 Theory of Statistics
3 s.h.
Introduction to statistical methodology. Emphasis on descriptive statistics, probability theory, and statistical inference. Prerequisite: 119 or consent of instructor.

220-202 Theory of Statistics
3 s.h.
Continuation of 220-201: estimation, hypothesis testing, and correlation. Prerequisite: 220-201.

220-203 Analysis of Categorical Data
3 s.h.
Methods of analysis for categorical data, including contingency tables, chi-square tests, and logistic regression. Prerequisite: 220-202.

220-204 Advanced Inferential Statistics
3 s.h.
Continuation of 220-203: estimation, hypothesis testing, correlation, and regression. Prerequisite: 220-203.

220-205 Linear Models
3 s.h.
Linear models and regression analysis, multivariate normal distribution and quadratic forms, tests of hypotheses, analysis of covariance, factor analysis, principal components. Prerequisite: 220-204.

220-206 Theory of Probability I
3 s.h.
Probability spaces, random variables, expectation, moment generating functions, characteristic functions, independence, laws of large numbers, central limit theorem. Prerequisite: 220-205. Same as 221-206.

220-208 Theory of Probability II
3 s.h.

220-272 Topics in Theory of Probability and Statistics
1-3 s.h.
May be repeated. Consent of instructor required.

220-295 Summer Mathematical Statistics
3 s.h.
Course of study varies. Prerequisite: 220-205.

220-295 Summer Probability
3 s.h.
Course of study varies. Prerequisite: 220-205.

220-295 Summer Applied Statistics
3 s.h.
Course of study varies. Prerequisite: 220-205.

220-299 Banking Research
3 s.h.
Course of study varies. Consent of instructor required.

MICROBIOLOGY
Acting Direct.: Alan J. Markowitz
Undergraduate Degree: B.S. in Microbiology; Minor in Microbiology
Graduate Degree: M.S., Ph.D. in Microbiology

Microbiology is the branch of biological sciences that deals with the microbial living things—bacteria, fungi, algae, protozoa, and viruses. It is closely allied with virology, the study of the response of higher organisms to foreign substances.

Microbiologists and immunologists 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 microorganisms 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 fish, plants, and other microorganisms; 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 densifying 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 the same type of immunochemical diversity.

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, hospital, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies). Students who continue beyond the bachelor’s degree may seek opportunities in these same areas plus college and university teaching.

Undergraduate Program
Bachelor of Science in Microbiology

Undergraduate students majoring in microbiology at The University of Iowa must meet the General Education Requirements of the College of Liberal Arts. They must complete a minimum of 30 semester hours in microbiology to obtain a B.S. degree. No more than 2 semester hours of 400-level, 601, 611, or 612, and 1 semester hour of 601-633 Seminar in Microbiology may count toward this requirement.

Students who want to apply for certification by the National Registry of Microbiologists are required to earn at least 30 semester hours of credit in microbiological sciences, 30 of which must be in microbiology. Certification is required for employment or advancement in some areas, primarily in diagnostic microbiology.

Students may take microbiology courses more advanced than 611-633 General Microbiology once they have a grade of C+ or above in 611, 637, and science courses required by the department for the B.S. degree; such courses must be taken for letter grades. Students are encouraged to take the course for 0 semester hours credit during other semesters after they have taken 611-633.

Microbiology means must take the following courses in addition to required microbiology courses:

4.1 Principles of Chemistry I
3 s.h.
4.1 Principles of Chemistry II
3 s.h.
151 Principles of Chemistry Lab I
1 s.h.
151 Principles of Chemistry Lab II
1 s.h.
115 Organic Chemistry I
3 s.h.
121 Organic Chemistry II
3 s.h.
211 Organic Chemistry Laboratory
3 s.h.
211 Biochemistry and Molecular Biology II
4 s.h.
211 Biochemistry and Molecular Biology III
4 s.h.
220-14 Calculus for the Biological Sciences
3 s.h.
or
220-25 Calculus I
4 s.h.
220-25 Calculus II
4 s.h.
220-40 Engineering Calculus I
3 s.h.
220-41 College Physics
3 s.h.
371 Animal Biology
3 s.h.
Recommened courses include the following:
611-100 Expository Writing
3 s.h.
or
611-120 Writing for the Sciences
3 s.h.
Graduate Programs, Faculty, Courses

See "Microbiology" in the College of Medicine section of the Catalog.

MILITARY SCIENCE (ARMY ROTC)

Instructor: U. Col. Ely B. Roberts
Professor: Prof. Robert Tum represented Color
Assistant professor: Gregory B. Boulter, Capt. Thomas C. Cray

Introduction to Microbiology (MIC 111)
The Military Science Department is a nondegree-granting academic department that administers the Reserve Officer Training Corps (ROTSC program. This department provides students with education in the way of the military and instruction in personal leadership, while providing those students who choose to serve in the armed forces, on an active or reserve status, an opportunity to earn a commission as an Army officer.

Undergraduate Program

MICRO 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.

13:01 The Profession of Arms 3 h.
13:92 The Military in a Modern Society 2 h.
23:93 Military Servicew 3 h.
23:94 Principles of Modern Warfare 3 h.

The basic course requirements may cover over a one-year period or during a six-week paid camp during the senior year. Students with prior military training may be exempt from the basic course requirements.

ADVANCED COURSE

The ROTC advanced course, though open to any student who has the prerequisites, is designed primarily for students who wish to pursue a commission as a second lieutenant in the U.S. Army upon graduation. It is open to both undergraduate and graduate students. Students in the advanced course must have an obligation to the military that is stipulated in the regular Army or the Army Reserve.

A grant of $100 per month is provided to students who agree to serve in the armed forces. Additional financial assistance may be provided through participation in training with an Army Reserve unit.

To enter the advanced course, students must satisfy the basic course requirements, be academic junior, and have a grade-point average of at least 2.5. During the six-week paid camp, a Military student may take a summer before his senior year, if required for all students wishing to become Army officers. The following courses are the academic requirements for completion of the advanced course.

23:95 Advanced Military Training (Coursework: 23 117) 3 h.
23:96 Challenges of Leadership 3 h.
23:97 Leadership Team Tactics 3 h.
23:98 Military Management 3 h.
23:99 Service Orientation 3 h.

ADDITIONAL COURSE WORK

Students desiring a commission must complete one course each from the following categories. These courses may be the same as those used to fulfill the College of Liberal Arts General Education Requirements.

Written Communications

10:2 Technic II 4 h.
10:5 Advanced Rhetoric (or equivalent) 4 h.

Human Behavior

20:15 Introduction to Philosophy 3 h.
20:19 Introduction to Ethics 3 h.
50:1 Introduction to American Politics 3 h.
51:11 Behavioral Science 3 h.
52:21 Political and Society 3 h.
31: Design of Social Science 3 h.

1: American Values 3 h.
11:31 Introduction to the Study of Culture and Society 4 h.

11:13 Anthropology and Contemporary World Problems 3 h.

Mathematics

72:55 Elementary Statistics and 3 h.
22:1 Basic Algebra I (no degree credit) 3 h.
22:2 Basic Algebra II (no degree credit) 3 h.
22:3 Basic Geometry (no degree credit) 3 h.
22:10 Finite Mathematics 4 h.
22:31 Introduction to Calculus with Analytical Geometry 4 h.
22:38 Quantitative Methods I 3 h.
22:22 Calculus 3 3 h.
22:32 Statistics and Sociology 3 h.
22:35 Quantitative Methods II 3 h.
22:36 Principles of Reasoning 3 h.
36:40 Theory and Practice of Argument 4 h.
103:18 Language and Formal Reasoning 3 h.

Military History

16:11 Issues in Military History: Vietnam War in Historical Perspective 3 h.
16:12 Issues in Military History: Europe Conquest and Colonialism, 1000-1800 3 h.
16:17 Issues in Military History: The Cold War 3 h.
16:18 War and Society: 100-1800 3 h.
16:19 Women and War: 1800-1945 3 h.
16:22 The Vietnam War in Historical Perspective 3 h.
16:23 In America, A World at War 1931-1945 3 h.
16:24 America's Revolutionary Period 1776-1800 3 h.
16:25 U.S. War and Reconstruction 3 h.
16:26 The Progressive Era in America 3 h.
16:27 The Contemporary United States 1940-Present 3 h.

Computer Literacy

66:90 Computer Awareness 3 h.
7W:92 Introduction to Microcomputer for Teachers 3 h.
22:2 Computer Policy and Sustainable 3 h.
22:1 Computer Introduction to Computing 3 h.
22:9 Programming with FORTRAN 3 h.
22:96 Principles of Programming with FORTRAN 3 h.
22:16 Introduction to Programming 3 h.

Financial Aid

The Military Science Department offers two three- and four-year merit scholarships for students who wish to enter the ROTC program. These scholarships provide partial payment of tuition at The University of Iowa, $450 for books and supplies each year, at in-state rates, and a tax-exempt assistance allowance of $400 per month during the academic year. Additional scholarships are available for testing students who wish to become Army nines.
MUSEUM STUDIES
Chair and director: George D. Scott
Assistant professor: George D. Scott
Adjunct instructor: William W. Thomas

Museum Studies Program is designed for students who wish to pursue careers in art museums, natural history museums, science museums, and zoos. The program offers courses that provide a fundamental background in the history, organization, operation, and management of museums, with special emphasis on exhibit design, exhibition, and education outreach.

Museum studies is a major in the natural sciences (biology, geology, archaeology, anthropology, and zoology). The program includes courses in the biological sciences, anthropology, and history of natural history, and complementary courses in history, sociology, and psychology. The program is designed for students preparing for careers in museums and science centers.

Museum studies courses are of value not only to students intending to pursue careers in museums, but also to those with specialized interests in the arts, science, or the humanities. Museum studies can be a useful tool in the following areas: art history, anthropology, and archaeology, science education, communication, education, and secondary education, history preservation, history education, library science, museum studies, and museum education.

Museum Facilities
The museum studies program is currently located on The University of Iowa campus and access to several excellent museum facilities. The Museum of Natural History in MacFadden Hall was founded in 1885 and is one of the oldest university museums in the United States. The museum is designed to provide students with the facilities and opportunities to gain hands-on experience through participation in its programs. The University of Iowa Museum of Art is responsible for the visual arts collection, and the art studio provides opportunities for students to gain experience through participation in its programs. The University of Iowa Museum of Art is responsible for the visual arts collection, and the art studio provides opportunities for students to gain experience through participation in its programs. The University of Iowa Museum of Art is responsible for the visual arts collection, and the art studio provides opportunities for students to gain experience through participation in its programs.

MUSIC
Director: David Nolan
Asst. director: John M.M.

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Bachelor of Music

Course Requirements

All baccalaureate candidates in music must satisfy the College of Liberal Arts Graduate Education Requirements, except that B.M. candidates are exempt from the historical perspectives requirement. The following School of Music course requirements also must be met.

25:1-4 Music History and Theory I 16 s.h.
25:7-12 Group Instruction in Piano III or the successor course of proficiency exams I and II 2 s.h.
(Registration to Group Instruction in Piano III is contingent on 25:1-2 Music History 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 (seven semester or concert performances for all candidates for the B.M. degree, but four semester or concert performances for music therapy students)
25:107 Techniques of Conducting 2 s.h.
25:144 History of Music I 3 s.h.
25:46 History of Music II 2 s.h.
25:154 Senior Recital
(To complete the senior recital, students must have achieved upper-level applied status or be enrolled in upper-level applied music courses; see "Applied Music" in the section of the Catalog. Music therapy students must complete either a senior recital or a senior research project.)
At least four semester hours of electives from the following. (The combination of courses 25:145 and 25:147 or more than one course chosen from 25:101, 25:105, 25:245, and 25:344 does not fulfill this requirement.)
25:117 Arranging for Band 2 s.h.
25:135 Composition 2 s.h.
25:145 Counterpoint before 1800 3 s.h.
25:147 Counterpoint after 1800 3 s.h.
25:146 Analysis of Music Literature (6900-7150) 3 s.h.
25:149 Analysis of Music Literature 3 s.h.
25:150 Analysis of Music Literature 3 s.h.
25:151 Analysis of Music Literature 3 s.h.
25:152 Analysis of Music Literature Special Topics 2 s.h.
25:153 Keyboard Harmony 3 s.h.
25:157 Orchestration 2 s.h.
25:205 Conducting Choral Music 3 s.h.
25:101 Jazz Improvisation I 2 s.h.
25:102 Jazz Improvisation II 2 s.h.
25:243 Jazz Improvisation III 2 s.h.
25:244 Jazz Improvisation IV 2 s.h.

Applied Music

Four years of applied music are required. Instruction is sequenced into two levels, lower and upper. Students must achieve upper-level status before they can give a senior recital.

Determination of readiness for upper-level applied music is based on the student's area of instruction. Students are allowed a maximum of 6 semester hours (not including summer) in the lower-level applied instruction. Those who want to continue beyond the maximum allowable lower-level registration must do so under the nonmajor category.

College of Arts and Sciences: at least 45 semester hours in the School of Music, at least 17 additional semester hours of music courses for performance majors, and at least 17 additional semester hours of music courses in theory, analysis, and composition.
Music Therapy

Admission to the program in music therapy is based on successful completion of Grade C or better in M111 Introduction 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 is an approved off-campus clinical facility required before the completion of the internship. Students may apply for exemption with the National Association for Music Therapy and are qualified to sit for the board certification examination. To increase their job opportunities in the education sector, students are encouraged to complete music therapist certification requirements.

Course requirements for the major in music therapy are as follows:

- 25:74 Basic Attendance (4 semesters required)
- 25:04 Music Therapy Prerequisites (3 semesters, terms 1, 2, and 2 semester hour, respectively)
- 25:96 Music Techniques in Special Education and Recreation
- 25:114 Orientation to Music Therapy
- 25:138 Music Therapy Techniques: Atypical Children
- 25:159 Music Therapy Techniques: Adult Clients
- 25:170 Internship in Music Therapy
- 75:144 Psychology of Music
- 75:149 Behavior Change in Music
- 25:04 Music Therapy Prerequisites (suggest for those planning to enter the program)
- 25:154 Senior Recital

Music therapy students who elect the senior recital option must take four years of applied music and attain at least a 2.0 GPA; they must also complete 8 semester hours of recital attendance. Those who elect the senior research project option must take three years of applied music and a minimum of 12 hours of senior recital attendance.

Composition Major

Applicants may submit samples of creative work for evaluation by the composition faculty. Upon admission to the program, students are assigned a faculty advisor. Accomplished applicants may gain admission as entering freshmen; in such cases the approval of submitted work waives the necessity of a performance audition. Those who elect the senior research project option must attend at least 50 recitals the semester before graduation. Students fulfill the general requirements of the Bachelor of Music degree as raised in 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 advisors.

The Bachior's Thesis (25:99) replaces the recital required of all music majors and 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 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 non-music majors programs.

Students may earn music certification if they complete the curriculum listed for the appropriate certification program as applied strings, brass, woodwinds, and percussion: vocals and keyboard; see "Teacher Certification (Music Specialist)," Specific course requirements vary for each of the available majors under the B.A. degree, although at College of Liberal Arts General Education Requirements must be met for each. Students should check with their advisors, the area advisor, or the office for specific program requirements.

Teacher Certification (Music Specialist)

Areas of concentration in music education are instrumental music, vocal music, and music in special education. In addition to the B.A. or B.M. requirements in music and liberal arts, certification 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.

INSTRUMENT MAJORS

Instruction is performance skills and voice majors take one year of 25:23 Cellos; organ and bass majors take one year of 25:51 Violins. 25:05 Church Singing.
Honors

Freshman and sophomore music majors with an average of 3.50 or better may enter the honors program. Contact the Department of the College of Liberal Arts Honors Program for information. The honors program is introductory in nature. The honors program is open to students in the sophomore year and to juniors in the junior year. It is designed to provide an environment in which students may pursue their intellectual interests in music in a more intensive and individualized manner. In addition to all requirements for the major, students in the honors program must maintain a cumulative GPA of 3.50 or better and complete a minimum of 15 hours of honors coursework. Students in the honors program are required to complete a senior honors thesis or a creative project. The honors thesis or project must be approved by the student's advisor and the Honors Program Committee. The honors thesis or project must be submitted by the end of the spring semester of the senior year.

Theory Pedagogy Minor

Candidates for graduate degrees in music may elect a minor in music theory pedagogy by completing the following courses:
- 25:145 Counterpoint before 1600 3 s.h.
- 25:147 Counterpoint after 1600 3 s.h.
- 25:230 Methods and Techniques of Teaching Basic Theory 3 s.h.
- 25:237 Seminar in Music Theory Pedagogy 3 s.h.

Three of these:
- 25:146 Analysis of Music Literature 1600-1750 3 s.h.
- 25:149 Analysis of Music Literature 1750-1850 3 s.h.
- 25:152 Analysis of Music Literature 1850-1900 3 s.h.
- 25:153 Analysis of Music Literature 1900-Present 3 s.h.
- 25:152 Analysis of Music Literature Special Topics 3 s.h.
- 25:212 Gregorian Chant 3 s.h.

Master of Arts

The Master of Arts in Music offers a program of study in music theory, composition, musicology, and music education. The program is designed for students who wish to pursue advanced study in these areas. The program requires the completion of 36 semester hours of course work, including both core and elective courses. The core courses include:
- 25:217 Advanced Music Theory 3 s.h.
- 25:221 Advanced Composition 3 s.h.
- 25:222 Advanced Harmony and Counterpoint 3 s.h.
- 25:230 Methods and Techniques of Teaching Basic Theory 3 s.h.
- 25:237 Seminar in Music Theory Pedagogy 3 s.h.

Doctoral Degrees

The M.F.A. is for students of superior ability in instrumental or vocal performance. It requires a minimum of 60 post-baccalaureate credit hours. In addition to the entrance and continuing requirements for the Master of Arts degree, students must complete a minimum of 120 semester hours, including a full-length recital or performance project (25:401 M.F.A. Thesis), for a total of 8 semester hours. The thesis must be a major work of original research or composition. The thesis must be approved by the student's advisor and the graduate program committee. The dissertation must be approved by the student's advisor and a minimum of two members of the dissertation committee. The dissertation must be submitted to the Graduate College for evaluation.

Doctoral Examinations

Students must pass at least two written examinations: the Doctoral Written Examination (DWE) and the Doctoral Oral Examination (DOE). The DWE consists of two parts: a written examination in music theory and a written examination in musicology. The DOE consists of a presentation and a discussion of the doctoral thesis, followed by a question-and-answer session with the examination committee. The dissertation must be approved by the student's advisor and a minimum of two members of the dissertation committee. The dissertation must be submitted to the Graduate College for evaluation.

Promotions

Promotions are determined by the student's advisor and the graduate program committee. Promotions are based on the student's progress in the program and the completion of the required coursework. Promotions are typically awarded after the completion of at least two years of study. The dissertation must be approved by the student's advisor and a minimum of two members of the dissertation committee. The dissertation must be submitted to the Graduate College for evaluation.

Graduate Programs

Enrollment in the Graduate College is determined by the student's advisor and the graduate program committee. The student's advisor must submit a completed Graduate Program Application Form to the Graduate College. The application form must be approved by the graduate program committee. The application form must be submitted by the end of the spring semester of the junior year. The application form must be submitted by the end of the spring semester of the junior year. The application form must be submitted by the end of the spring semester of the junior year. The application form must be submitted by the end of the spring semester of the junior year. The application form must be submitted by the end of the spring semester of the junior year.
area requirement is available from the School of Music office.

Candid students must participate in a major ensemble during each term of residence unless excused by Music Department of major ensembles, see "Ensemble Participation" under "Music Library" in the section of the Catalog. During the audition season, students should be available for ensemble participation as needed. Keyboard majors may substitute an equivalent accompaniment accomplishment in place of a major ensemble, at their advisor's discretion. Theory, composition, musicology, and music education majors may, with their advisor's consent, substitute other ensembles.

Doctor of Philosophy

Areas of concentration for the Ph.D. include composition, musicology, music education, music theory, and music literature. The music literature program is designed for students who already have achieved a professional level of musical performance. They are required to audition in their major performance area.

Information about specific auditions and entrance requirements for each area is available from the director's office.

Doctor of Musical Arts

Requirements for the D.M.A. degree in performance and pedagogy are the general doctoral requirements of the school, except that the D.M.A. dissertation consists of three full-length recitals or two recitals and a seminar concert performance with orchestral or other appropriate large ensemble. Vocalists may substitute one recital or one major recital in place of one major recital in a large ensemble work for one major recital. Conductors present two programs.

D.M.A. candidates also must complete a scholarly investigation of limited scope in a written essay or thesis.

Admission

Before students are considered for admission to a doctoral program, they must have submitted supporting materials in their indicated area of concentration, as follows:

- Composition—representative music scores
- Theory—analysis or research papers
- Music education—research papers
- Music literature—research papers and auditions
- Performance (including conductings)—audition
- Music history and musicology—research papers or theses, letters of recommendation

Graduate Awards

Qualified graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the School of Music.

Music for Nonmajor Students

Courses particularly recommended for students who are not majoring in music but who are interested to in the following.

- 25:16 Fundamentals of Music
- 25:14 Masterpieces of Music
- 25:04 Recital Attendance for Nonmajors
- 25:195 World Music: Music for Students Interested in Non-Western Music
- 25:198 The Eighteenth- and Nineteenth-Century Composers
- 25:160 Early Baroque and Baroque-Corpus Composers

Performing Arts (25-75) is available for singers who wish to develop elementary performance skills for personal musical growth and enjoyment.

Participation in School of Music ensembles is open to all university students with the ensemble director's approval (for a list of major ensembles, see "Ensemble Participation" under "Bachelor of Music" in this section of the Catalog).

Applied music instruction offered to nonmajors as instructions are available. Nonmajors interested in performance should consult music advisors regarding appropriate courses in applied music.

Special Programs

The Center for New Music is a performance ensemble within the School of Music. Founded in 1960 with a grant from The Rockefeller Foundation, the center provides opportunities for existing resident musicographers to fuse a wide variety of music for the purpose of performing twentieth-century music. As a vital ingredient of the School of Music, the Center serves New Music as a research and performance laboratory for staff and students, and as a responsive ensemble for the continued performance of new music. Audition information is available on request.

Facilities

The Iowa Center for the Arts has one of the nation's finest facilities for teaching and performance in music. In addition to class and seminar rooms, the Music Building includes 55 teaching studios, 73 practice rooms, a library, two electronic music laboratories, eating and drinking facilities with 50 lightning points, large rehearsal rooms and an ensemble practice facility, professional recording facilities, a fine arts computer lab with two terminals and seven supercomputers with SGI equipment and music-related software, seven practice and visitable organs, the 80-year-long Organ Studio and the 72-floor Clapp Recital Hall. Recital Auditorium seats 2,860 people for concerts and 2,400 for operas and other stage productions.

Resources of the Ratz Barlow Music Library include more than 46,000 volumes of music, 17,000 scores, 10,000 recital recordings, 200 performance scores, and 300 current periodicals in several languages. The collection of reference materials includes large, well-organized supporting research in many areas of musical study. The rare book holdings include a large number of late-eighteenth- and nineteenth-century scores. The library's quarters in the Music Building provide seating for 100 people in the reading room and 30 at the landing stations in the sound recording rooms.

Physical facilities also include a combined recital and auditorium and a space for a recording studio, microphones, recorders, typewriters, and video monitors.

Courses

General

- 25:00 Cooperative Education Internship

- 25:05 Masterpiece of Music I

- 25:06 Masterpiece of Music II

- 25:14 Masterpiece of Music III

- 25:16 Masterpiece of Music IV

- 25:17 Masterpiece of Music V

- 25:18 Masterpiece of Music VI

- 25:20 Masterpiece of Music VII

- 25:21 Masterpiece of Music VIII

- 25:22 Masterpiece of Music IX

- 25:23 Masterpiece of Music X

- 25:24 Masterpiece of Music XI

- 25:25 Masterpiece of Music XII

- 25:26 Masterpiece of Music XIII

- 25:27 Masterpiece of Music XIV

- 25:28 Masterpiece of Music XV

- 25:29 Masterpiece of Music XVI

- 25:30 Masterpiece of Music XVII

- 25:31 Masterpiece of Music XVIII

- 25:32 Masterpiece of Music XIX

- 25:33 Masterpiece of Music XX

- 25:34 Masterpiece of Music XXI

- 25:35 Masterpiece of Music XXII

- 25:36 Masterpiece of Music XXIII

- 25:37 Masterpiece of Music XXIV

- 25:38 Masterpiece of Music XXV

- 25:39 Masterpiece of Music XXVI

- 25:40 Masterpiece of Music XXVII

- 25:41 Masterpiece of Music XXVIII

- 25:42 Masterpiece of Music XXIX

- 25:43 Masterpiece of Music XXX

- 25:44 Masterpiece of Music XXXI

- 25:45 Masterpiece of Music XXXII

- 25:46 Masterpiece of Music XXXIII

- 25:47 Masterpiece of Music XXXIV

- 25:48 Masterpiece of Music XXXV

- 25:49 Masterpiece of Music XXXVI

- 25:50 Masterpiece of Music XXXVII

- 25:51 Masterpiece of Music XXXVIII

- 25:52 Masterpiece of Music XXXIX

- 25:53 Masterpiece of Music XL

- 25:54 Masterpiece of Music XXL

- 25:55 Masterpiece of Music XXLI

- 25:56 Masterpiece of Music XXII

- 25:57 Masterpiece of Music XXIII

- 25:58 Masterpiece of Music XXIV

- 25:59 Masterpiece of Music XXV

- 25:60 Masterpiece of Music XXVI

- 25:61 Masterpiece of Music XXVII

- 25:62 Masterpiece of Music XXVIII

- 25:63 Masterpiece of Music XXIX

- 25:64 Masterpiece of Music XXX

- 25:65 Masterpiece of Music XXXI

- 25:66 Masterpiece of Music XXXII

- 25:67 Masterpiece of Music XXXIII

- 25:68 Masterpiece of Music XXXIV

- 25:69 Masterpiece of Music XXXV

- 25:70 Masterpiece of Music XXXVI

- 25:71 Masterpiece of Music XXXVII

- 25:72 Masterpiece of Music XXXVIII

- 25:73 Masterpiece of Music XXXIX

- 25:74 Masterpiece of Music XL

- 25:75 Masterpiece of Music XX

- 25:76 Masterpiece of Music XXI

- 25:77 Masterpiece of Music XXII

- 25:78 Masterpiece of Music XXIII

- 25:79 Masterpiece of Music XXIV

- 25:80 Masterpiece of Music XXV

- 25:81 Masterpiece of Music XXVI

- 25:82 Masterpiece of Music XXVII

- 25:83 Masterpiece of Music XXVIII

- 25:84 Masterpiece of Music XXIX

- 25:85 Masterpiece of Music XXX

- 25:86 Masterpiece of Music XXXI

- 25:87 Masterpiece of Music XXXII

- 25:88 Masterpiece of Music XXXIII

- 25:89 Masterpiece of Music XXXIV

- 25:90 Masterpiece of Music XXXV

- 25:91 Masterpiece of Music XXXVI

- 25:92 Masterpiece of Music XXXVII

- 25:93 Masterpiece of Music XXXVIII

- 25:94 Masterpiece of Music XXXIX

- 25:95 Masterpiece of Music XL
UNDERGRADUATE MAJOR

Lower Level
25:40 Lower Level Voice
25:41 Lower Level Voice
25:42 Lower Level Organ
25:43 Lower Level Harp
25:44 Lower Level Violin
25:45 Lower Level Viola
25:46 Lower Level Cello
25:47 Lower Level String Bass
25:48 Lower Level Flute
25:49 Lower Level Oboe
25:50 Lower Level Clarinet
25:51 Lower Level Bassoon
25:52 Lower Level Saxophone
25:53 Lower Level Horn
25:54 Lower Level Trumpet
25:55 Lower Level French Horn
25:56 Lower Level Tuba
25:57 Lower Level Trombone
25:56 Upper Level Percussion

Upper Level
26:11 Upper Level Voice
26:12 Upper Level Piano
26:13 Upper Level Organ
26:14 Upper Level Violin
26:15 Upper Level Oboe
26:16 Upper Level Cello
26:17 Upper Level Bassoon
26:18 Upper Level Saxophone
26:19 Upper Level Horn
26:20 Upper Level Trombone
26:21 Upper Level Trumpet
26:22 Upper Level French Horn
26:23 Upper Level Tuba

MUSIC MINOR
25:24 Major Bassoon
25:25 Major Saxophone
25:26 Major Horn
25:27 Major Trumpet
25:28 Major Euphonium
25:29 Major Trombone
25:30 Major Tuba
25:31 Major Percussion

Minor Field
Students pay $55 per course per semester for instruction in their minor field of performance. Minor fields may exceed the maximum credit of one 8-hour block per term of 8 credit hours. Check with your program of study or the Department of Music for accuracy. Students may elect to take two or more courses in a particular area, but the total number of credits earned in each area cannot exceed 50.

UNDERGRADUATE MAJOR
25:17 Non-Major Voice
25:18 Non-Major Piano
25:19 Non-Major Organ
25:20 Non-Major Violin
25:21 Non-Major Viola
25:22 Non-Major Cello
25:23 Non-Major String Bass
25:24 Non-Major Piano
25:25 Non-Major Organ
25:26 Non-Major Violin
25:27 Non-Major Viola
25:28 Non-Major Cello
25:29 Non-Major String Bass
26:12 Non-Major Voice
26:13 Non-Major Piano
26:14 Non-Major Organ
26:15 Non-Major Violin
26:16 Non-Major Viola
26:17 Non-Major Cello
26:18 Non-Major String Bass
26:19 Non-Major Piano
26:20 Non-Major Organ
26:21 Non-Major Violin
26:22 Non-Major Viola
26:23 Non-Major Cello
26:24 Non-Major String Bass
26:25 Non-Major Piano
26:26 Non-Major Organ
26:27 Non-Major Violin
26:28 Non-Major Viola
26:29 Non-Major Cello
26:30 Non-Major String Bass

GRADUATE MAJOR
25:140 Upper Level Voice
25:140 Upper Level Piano
25:140 Upper Level Organ
25:140 Upper Level Violin
25:140 Upper Level Cello
25:140 Upper Level Bassoon
25:140 Upper Level Saxophone
25:140 Upper Level Horn
25:140 Upper Level Trombone
25:140 Upper Level Trumpet
25:140 Upper Level French Horn
25:140 Upper Level Tuba
25:140 Upper Level French Horn
25:140 Upper Level Tuba
25:140 Upper Level French Horn
25:140 Upper Level Tuba

GRADUATE MINOR
25:160 Non-Major Voice
25:160 Non-Major Piano
25:160 Non-Major Organ
25:160 Non-Major Violin
25:160 Non-Major Viola
25:160 Non-Major Cello
25:160 Non-Major String Bass
25:160 Non-Major Piano
25:160 Non-Major Organ
25:160 Non-Major Violin
25:160 Non-Major Viola
25:160 Non-Major Cello
25:160 Non-Major String Bass
25:160 Non-Major Piano
25:160 Non-Major Organ

ENSEMBLES
25:170 Non-Major Voice
25:170 Non-Major Piano
25:170 Non-Major Organ
25:170 Non-Major Violin
25:170 Non-Major Viola
25:170 Non-Major Cello
25:170 Non-Major String Bass

ENSEMBLES

No fee is charged; courses may be repeated; consent of instructor required.

25:190 Ensemble Singers
25:191 Choir
25:192 Chamber Orchestra
25:193 Collegium Musicum
25:194 Vocal Ensemble
25:195 Wind Ensemble
25:196 Wind Ensemble
25:197 Wind Ensemble
25:198 Wind Ensemble
25:199 Wind Ensemble

OPERA

25:180 Opera: Theatrical Production
25:181 Opera: Theatrical Production
25:182 Opera: Theatrical Production
25:183 Opera: Theatrical Production
25:184 Opera: Theatrical Production
25:185 Opera: Theatrical Production
25:186 Opera: Theatrical Production
25:187 Opera: Theatrical Production
25:188 Opera: Theatrical Production
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25:280 Opera: Theatrical Production
25:281 Opera: Theatrical Production

NEUROSCIENCE

Graduate degree: Ph.D. in Neuroscience

The Neuroscience Ph.D. Program is an interdisciplinary program involving members of the Departments of Anatomy, Biological Sciences, Pharmacology, Physiology and Neurobiology, and Psychology as well as a number of faculty members from clinical departments. See "Neurosciences" in the College of Medicine section of the Catalog for a list of participating faculty members, degree requirements, and courses.
PHILOSOPHIES AND ETHICS OF POLITICAL, LAW, AND ECONOMICS

Director: Philip Cozzens
Undergraduate degree programs in Philosophy and Ethics of Political, Law, and Economics, or PEOPLE. The program's primary departments include economics, philosophy, and political science. Students pursuing majors or minors in these departments are eligible to join the PEOPLE program; preview students may find it especially attractive. People and Ethics of Political, Law, and Economics is based on the assumption that society institutionalizes values. These govern institutions that guide conduct by governing outcomes, prescribing behavior, and influencing beliefs and attitudes. As people exercise their behavior in society, they find that their roles as subjects, decision makers, and inquirers must be studied as both limited and aggregated in order to be understood. The PEOPLE program enables its students to select courses that investigate issues, motives, and values in behavior, and how they interact. Because of the program's multiple requirements, students should begin as freshmen or sophomores. However, juniors who already have taken enough courses that satisfy PEOPLE requirements can enter and complete the program by the time they graduate. Students who complete the program requirements earn a certificate, and the notation "Certificate in the Philosophy and Ethics of Political, Law, and Economics" appears on their transcripts. Students interested in entering in the PEOPLE program should contact the program director.

Certificate
Students must complete 36 semester hours to earn the PEOPLE certificate. Those who have a major in one of the program's core departments and a minor in another may participate as long as they can fulfill the certificate requirements. A course that meets a General Education Requirement and a requirement in the major or minor may also be used to meet a PEOPLE requirement. Students must complete the following course of study.

Foundation
Each PEOPLE student must complete a major or minor in economics, philosophy, or political science. Within the chosen discipline, the student must take courses that provide basic familiarity with issues and methods of the discipline and the general cases, reasons, or values. Requirements for each discipline are as follows.

ECONOMICS
Students must choose either the microeconomics or the macroeconomics track. Microeconomics
OE-5 Principles of Microeconomics 3 s.h.
OE-103 Microeconomics 3 s.h.
or
OE-104 Microeconomic Theory 3 s.h.
OE-109 History of Economic Thought 2 s.h.
One course on issues in microeconomics, chosen from:
OE-111 Labor Economics 3 s.h.
OE-113 Health Economics 2 s.h.
OE-133 Environmental and Natural Resource Economics 3 s.h.
OE-130 Urban Economics 3 s.h.
OE-141 Economics of American Industries 3 s.h.
OE-142 Armament Legal and Economic Analysis 3 s.h.
OE-145 Introduction to the Economics of Transportation 3 s.h.
OE-147 Law and Economics 3 s.h.
OE-170 Industrial Organization 3 s.h.
Macroeconomics
OE-2 Principles of Microeconomics 3 s.h.
OE-105 Macroeconomics 3 s.h.
OE-170 History of Economic Thought 2 s.h.
One course on issues in macroeconomics, chosen from:
OE-117 Money, Banking, and Financial Markets 3 s.h.
OE-119 Economics of the Government Sector 3 s.h.
OE-125 International Economics 3 s.h.
OE-126 Economic Growth and Development 3 s.h.
OE-150 Introduction to Economic History 3 s.h.
OE-163 Comparative Economic Systems 3 s.h.
OE-173 Advanced International Economics 3 s.h.
OE-174 Monetary Economics 3 s.h.
OE-176 Public Sector Economics 3 s.h.
PHILOSOPHY
OE-26 Philosophy and Human Nature 3 s.h.
OE-202 Introduction to Ethics 3 s.h.
One course in the history of philosophy, chosen from:
OE-161 Ancient Philosophy 3 s.h.
OE-162 Medieval Philosophy 3 s.h.
OE-114 Seventeenth-Century Philosophy 3 s.h.
OE-116 Eighteenth-Century Philosophy 3 s.h.
OE-117 Nineteenth-Century Philosophy 3 s.h.
OE-118 Twentieth-Century Philosophy 3 s.h.
OE-125 American Philosophy 3 s.h.
OE-161 Benthamite Philosophy 3 s.h.
One course on relevant issues, chosen from:
OE-104 Introduction to Philosophy of Science 3 s.h.
OE-126 Political Philosophy 3 s.h.
OE-133 Philosophy of History 3 s.h.
OE-187 Epistemology 3 s.h.
OE-200 Philosophy of the Human Sciences 3 s.h.

POLITICAL SCIENCE
POL-50 Introduction to Political Thought and Political Action 3 s.h.
One course on methods of political analysis, chosen from:
POL-50 Introduction to Political Behavior 3 s.h.
POL-60 Introduction to International Relations 3 s.h.
POL-70 Introduction to Political Communications 3 s.h.
POL-118 Law and Social Change 3 s.h.
POL-153 Introduction to Positive Political Theory 3 s.h.
POL-160 Research Seminar on the Study of Politics 3 s.h.
One course on the history of political thought, chosen from:
POL-101 Foundations of Political Theory 3 s.h.
POL-102 Modern Political Theory 3 s.h.
POL-103 Postmodern Political Theory 3 s.h.
POL-104 American Political Theory 3 s.h.
POL-105 Introduction to Positive Political Theory 3 s.h.
One course on issues in political theory, chosen from:
POL-268 Current Political Theory 3 s.h.
POL-262 Political Issues 3 s.h.
POL-265 Governing in the Future 3 s.h.
POL-267 Political Communication and Cognition 3 s.h.
POL-269 Honor's Seminar on Political Theory 3 s.h.

Fields
Students must complete three courses (9 semester hours) in each of two of the following fields: economics, ethics, politics, and law—by following:

ECONOMICS
Not open to students using economics as their foundation.
OE-81 Principles of Microeconomics 3 s.h.
OE-103 Microeconomics 3 s.h.
or
OE-82 Principles of Macroeconomics 3 s.h.
OE-105 Macroeconomics 3 s.h.
OE-160 Microeconomics 3 s.h.
One course on the history of economic theory, chosen from:
OE-179 History of Economic Thought 2 s.h.

ETHICS
Not open to students using philosophy as their foundation.
14-107 Ancient Views of Justice 3 s.h.
14-102 Introduction to Ethics 3 s.h.
One course in the history of ethics, chosen from:
14-122 Political Philosophy 3 s.h.
14-128 Analytic Ethics 3 s.h.
18-182 History of Ethics 3 s.h.
18-184 Moore, Prichard, and Ross 3 s.h.
Primarily for Graduates

All may be repeated except 20-220.

20-020 Session: Philosophy of Language

20-021 Session: Metalogics

20-022 Session:Philosophical Analysis

20-023 Session: Philosophy of Science

20-025 Session: Philosophy of Religion

20-026 Session: Ethics

20-027 Session: Ancient Philosophy

20-028 Session: Medieval Philosophy

20-029 Session: Modern Philosophy

20-043 Research: Value Theory

20-044 Research: Epistemology and Metaphysics

20-045 Research: Logic and Philosophy of Science

20-046 Research: History of Philosophy

20-030 Thes.

PHYSICAL EDUCATION AND SPORTS STUDIES

Chair: Beejay Sitter

Professors: Susan Bieden, David R. Cassel

Research Assistant: Margaret J. C. Rose

Associate professors: H. Peggy Suller, Gary F. Stearns, Christian B.B. Grass, Daniel K. Cecile, Bonnie J. Stearns

Associate professor emeritus: Jeanette L. Scalzi

Graduate professor: Ephraim Young

Visiting assistant professors: Barbara T. Watson

Associate professor emeritus: Jeanette L. Scalzi

Assistant in Instruction: Beth Begley, Gaye Brown, Salihettin M. Cakir, Charles Curran, Ch:Theo DeMarco, Carol Ditter, Jerold M. Russell, Peter

Kennedy, Mel Stilling, Linda Sprung, Dennis Stier, Vivian Stoffler, "On Choral Theories" Undergraduate degrees: B.S. in Physical Education; B.S. in Physical Education and Special Studies offers a bachelor's degree with a major in physical education and specializations in health promotion and teacher education. It also offers graduate programs leading to the Master of Arts in Elementary Education and Doctor of Philosophy in physical education.

Undergraduate Programs

It is recommended that all students in physical education satisfy the General Education Requirement in natural science by taking Chemistry 415 or 416 and Biologics Sciences 211, 212, 213, and 215. Each undergraduate student in physical education elects a wide variety of courses and activities in preparation for careers in teaching, corporate fitness programs, wellness centers, private health clubs, YMCA-WACs, and sport programs. Students are advised to take at least one course in music, biology, and physical education, with implications for the performance and teaching of fitness and sport skills. The undergraduate programs also are designed to prepare students for graduate study in physical education ("Consortium Programs" for areas of specialization).

The professional major in physical education leads to the Bachelor of Science degree.

Health Promotion Specialization

PROGRAM REQUIREMENTS

4.7 General Chemistry I

or

1.03 Principles of Chemistry I

2.2 Introductory Animal Behavior

2.3 Principles of Animal Behavior

1.51 Human Biology

25-26 Elementary Statistics and Inference

225-2 Statistics and Society

225-8 Quantitative Methods and

CORE COURSE

21-10 Introduction to Human Anatomy

27-81 Biophysics

27-140 Exercise Physiology for Physicians

281-2 Physical Education Skills

285-5 Fitness and Wellness for Life

28-75 Contemporary Issues in Health Promotion

28-77 First Aid and CPR (as current certification)

28-110 Preventive Strategies for Sport/Wellness Programs

28-113 Stress Management

28-113 Principles of Exercise Testing and Exercise Prescription

104-100 Introductory Nutrition

104-108 Health Promotion in Corporate, Hospital, and Parent Settings

104-108 Computer Application for Park and Recreation Management

104-108 Demonstrated Expertise

36-12 Internship Seminar

26-185 Internships

12-6 Internships

Acceptance into an internship program is based on the following criteria:

0.25 minimum grade-point average in

27-140, 281-2, and 104-108, with a minimum grade of C in each; and

0.25 minimum grade-point average on all University of Iowa course work; and completion of all requirements for the major.
Health Management
6A: Introduction to Financial Accounting 3 s.h.
6B: 2 Management Cost Accounting 3 s.h.
6C: Principles of Microeconomics 3 s.h.
6D: Principles of Macroeconomics 3 s.h.
6E: 17 Entrepreneurship and New Business Formations 3 s.h.
6F: 128 Managing the New or Small Business 3 s.h.
6G: 1 Introduction to Law 3 s.h.
6H: 100 Administrative Management 3 s.h.
6I: 101 Introduction to Marketing 3 s.h.
104: 134 Introduction to Planning and Design of Recreation and Parks Areas and Facilities 2 s.h.
104: 130 Park and Recreation Facility Management 3 s.h.
or
104: 139 Managing Contractual Recreation Enterprise 3 s.h.

Teacher Certification Specialization
The following academic, activity, and teacher certification courses are required.

ACADEMIC
28: 154 Laboratory in Teaching of Physical Activities 12 s.h.
28: 155 Teaching of Dance 2 s.h.
28: 177 First Aid and CPR 2 s.h.
or
Red Cross or comparable certification in first aid and CPR
27: 53 Human Anatomy 3 s.h.
27: 108 Mouse Learning and Motor Control 3 s.h.
28: 24 Issues in Health Education 3 s.h.
28: 43 Psycho-Social Dimensions of Physical Activity 3 s.h.
28: 160 Administration of Physical Education and Athletics 3 s.h.
28: 165 Physical Education for the Handicapped 3 s.h.
27: 140 Exercise Physiology for Practitioners 3 s.h.
28: 467 Measurement and Evaluation in Physical Education 3 s.h.
28: 164 History of Sport in the United States 3 s.h.
28: 174 Sport in the Western World: Greeks to Present 3 s.h.
27: 81 Kinesiology 3 s.h.
or
27: 107 Biomechanics of Physical Education 3 s.h.

ACTIVITY
Students must demonstrate competence in each of the following courses and may earn a maximum of 10 semester hours in the following activities. Students may take proficiency tests in various courses and may test out of a maximum of 7 semester hours. At least 7 semester hours must be earned through class participation.

28: 15 Self Defense, Cooperative Games, Innovative Games, Team Handball 1 s.h.
28: 16 Fighting and Wrestling 1 s.h.
28: 17 Recreational Skills 1 s.h.
28: 20 Volleyball 1 s.h.
28: 20 Field Sports (Bag football, soccer, quickball) 1 s.h.
28: 23 Softball 1 s.h.
28: 24 Basketball 1 s.h.
28: 25 Base Game Skills 2 s.h.
28: 60 Theory and Principles of Weight Training 1 s.h.
*Proficiency tests are not available for these activities.

TEACHER CERTIFICATION
78: 157 Physical Education and Motor Development (same as 28: 71) 2 s.h.
78: 172 Methods and Materials in Elementary Physical Education Prerequisite: Elementary School 3 s.h.
78: 172 Special Area Students Teaching 3 s.h.
78: 140 Human Relations for the Classroom Teacher 3 s.h.
78: 175 Educational Psychology and Measurement 3 s.h.
78: 197 Instructional Strategies and Design in Physical Education 3 s.h.
78: 160 Issues in Education 2 s.h.
78: 146 Methods of Secondary Physical Education 3 s.h.
78: 167 Seminar: Curriculum and Student Teaching 1 s.h.
78: 191 Observation and Laboratory Practice in the Secondary School 6 s.h.
78: 102 Introduction to Microcomputing for Teachers 1 s.h.

COACHING ENDOWMENT
The Iowa Department of Education requires that athletic coaches be certified. The following program has been approved by the Iowa Department of Education and is available to students who also complete the requirements for a teaching major.

27: 53 Human Anatomy 3 s.h.
27: 57 Basic Athletic Training 3 s.h.
28: 103 Administration of Physical Education and Athletics 2 s.h.
28: 165 Theory of Coaching 2 s.h.
28: 77 First Aid and CPR 2 s.h.
or
Red Cross or comparable certification in first aid and CPR
27: 140 Exercise Physiology for Practitioners 2 s.h.
27: 141 Exercise Physiology 3 s.h.
28: 77a:1 Murdock: Growth and Motor Development 2 s.h.
76: 196 Coaching Practice 1 s.h.

HEALTH ENDOWMENT
The following program has been approved by the Iowa Department of Education for certification to teach health. The following courses are required.

27: 53 Human Anatomy 3 s.h.
28: 77a:1 Murdock: Health and Motor Development 2 s.h.
28: 78a:1 Murdock: Health Education 2 s.h.
28: 77a:1 Murdock: Nutrition 3 s.h.
27: 132 Administration of Health and Wellness Programs 3 s.h.
or
27: 102 Administration of Physical Education and Athletics 3 s.h.
28: 164 History of Sport in the United States 2 s.h.
or
28: 174 Sport in the Western World: Greeks to Present 3 s.h.

Minor in Physical Education
The minor in physical education requires at least 15 semester hours of credit with a 2.00 minimum grade-point average. Twelve of the 15 semester hours must be taken at The University of Iowa in advanced courses. Students may choose from the following courses.

27: 53 Human Anatomy 3 s.h.
27: 81 Kinesiology 3 s.h.
27: 107 Biomechanics of Physical Education 3 s.h.
27: 140 Exercise Physiology for Practitioners 3 s.h.
27: 141 Exercise Physiology 3 s.h.
28: 77 Murdock: Growth and Motor Development 2 s.h.
76: 196 Coaching Practice 1 s.h.

Psychologcal-Physical Dimensions of Physical Activity 3 s.h.

27: 132 Administration of Health and Wellness Programs 3 s.h.
or
27: 102 Administration of Physical Education and Athletics 3 s.h.
28: 164 History of Sport in the United States 2 s.h.
or
28: 174 Sport in the Western World: Greeks to Present 3 s.h.
Graduate Programs

The Department of Physical Education and Sports Studies has been a pioneer in providing graduate physical education programs for women, especially at the doctoral level. It has awarded more than 300 master's degrees and more than 200 doctoral degrees during the past 50 years. Its graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, health, dance, and athletics. The department's proud heritage of producing leaders has been furthered by recent graduates, who continue to encourage high aspirations of the young women and men that it serves.

The curricula assume previous education in the respective fields. A program is planned individually with consideration given to the student's previous education and anticipated career. Completion of the graduate degree usually leads to teaching, research, coaching, or administration in a school or university.

The outstanding characteristics of the graduate programs are the flexibility of program planning for the individual student and the diversity of available research areas. Attendance at summer sessions is helpful in obtaining diverse instruction.

Graduate students work primarily in the Department of Physical Education and Sports Studies, but the resources of the entire University are available as needed. Work within the department provides a broad view and enrichment for selected specializations of master's and doctoral extent.

Internships are available in many areas and are strongly encouraged for students specializing in administrative coaching, and health promotion.

The graduate student group is cosmopolitan and international.

Master of Arts

The M.A. is awarded on completion of at least 20 semester hours of graduate work, including thesis, or 55 semester hours of course work without thesis. The curriculum leads to teaching, administration, coaching certification, or preparation for advanced degree work.

Core Requirements

Students must demonstrate competence in philosophy of science and methodology. Competence may be demonstrated by completion of a course in the undergraduate or graduate level or satisfactory performance on a written examination. The following courses are required.

28:203 Techniques of Research 3 s.h.
28:302 Seminar: Perspective in Human Movement 2 s.h.
17:103 Introduction to Statistical Methods (or equivalent)

The sport studies core consists of five areas: philosophy of sport, psychology of sport, sociology of sport, and history of sport. Students are required to take one course from at least three of these areas. Students in the health promotion program may choose to select courses from only two areas. The following courses satisfy the sport studies core requirements.

28:147 Philosophy of Sport 3 s.h.
28:157 Social Psychology and Sport 3 s.h.
28:153 Sociology of Women in Sport 3 s.h.
28:165 Inequality in Sport 3 s.h.
28:246 Sport in the U.S. Culture 3 s.h.
28:164 History of Sport in the United States or 28:174 Sport in the Western Worlds: Greeks to Present

Program Options

M.A. students may elect a general sport studies curriculum or a specialization in administration of physical education and athletics, health promotion, coaching, sociology of sport, or sport psychology.

In addition to the required courses listed above, students must take the core courses in their area of specialization as outlined below and electives selected in consultation with the advisor.

Administration of Physical Education and Athletics

28:106 Principles of Administration 3 s.h.
28:320 Advanced Athletic Administration 3 s.h.

Health Promotion

28:104 Health and Fitness: Research Program Models 3 s.h.
28:150 Fitness Sport Nutrition 3 s.h.
27:141-144 Exercise Physiology/ Laboratory 3 s.h.
101:206 Cardiopulmonary or 28:214 Exercise Physiology/Therapeutics 4 s.h.
28:306 Health Promotion and Cardiopulmonary Therapies arr.
28:152 Health Psychology 3 s.h.
28:230 Introduction to Health and Behavioral Science 3 s.h.

Coaching

All students must have or earn a coaching endorsement.

28:203 Psychological Research on Women in Sport 2.0 s.h.
28:150 Feminisms 1.0 s.h.
28:218 Advanced Coaching 2.0 s.h.

Sociology of Sport

28:153 Sociology of Women in Sport 2.0 s.h.
28:156 Inequality in Sport 3.0 s.h.
28:163 Sport and the Media 2.0 s.h.
28:340 Seminar in Sociology of Sport (may be repeated) 3.0 s.h.
28:348 A Cultural Analysis of Sport 3.0 s.h.

Sport Psychology

28:113 Stress Management 3.0 s.h.
28:330 Seminar in Sport Psychology or 28:331 Selected Issues in Social Psychology and Physical Activity (may be repeated) 3.0 s.h.
Psychological Testing 3.0 s.h.

Sport Studies

Students in the general sport study program must take at least one course from each of the four core areas. In addition, students must take at least two courses in the following areas: Administration of athletics, or physical education, or health promotion.

Coaching

History of sport

Philosophy of sport

Sociology of sport

Sport psychology

Doctor of Philosophy

All doctoral students must complete a minimum of 72 semester hours of graduate work, including general requirements for the master's degree and credit for the dissertation.

Requirements

Coursework in the area notes under the M.A. program also is required for the doctoral program. Deficiencies in these areas must be extended as early as possible.

Research Tools

All doctoral students are required to take a statistics course at an appropriate level at The University of Iowa. Students may choose either a foreign language or computer science as their second research tool.

The language requirement may be satisfied by taking two semesters of a given language with a minimum grade of C. By passing a Graduate Record Examination (GRE) General Test in a given language, or by passing a Ph.D. language examination.

The computer tool requirement option may be satisfied by taking two semester hours as approved by the departmental graduate committee.

REQUIRED COURSES

28:300 Research Forum 6.0 s.h.
28:352 Seminar: Perspectives in Human Movement 2.0 s.h.
28:405 Thesis: Ph.D. 6.0 s.h.

SPECIALIZATION

Students must complete a specialization of 30 semester hours, including dissertation. They may take approximately 20 semester hours in one or more departments other than the Department of Physical Education and Sports Studies. The following specialization areas have been approved: administration of physical education and athletics, psychology of sport, and sociology of sport. Students interested in another area may submit a plan of study for consideration.
### Facilities

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Description</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Iowa Golf Course</td>
<td>A research laboratory equipped for psychological, neuropsychological, and electrophysiological studies.</td>
<td><a href="https://www.uiowa.edu/golfcourse">University of Iowa Golf Course</a></td>
</tr>
<tr>
<td>University of Iowa Medical Center</td>
<td>A world-class medical center providing comprehensive care to patients.</td>
<td><a href="https://www.medicine.uiowa.edu">University of Iowa Medical Center</a></td>
</tr>
<tr>
<td>University of Iowa College of Dentistry</td>
<td>A comprehensive dental school offering undergraduate and graduate programs.</td>
<td><a href="https://dentistry.uiowa.edu">University of Iowa College of Dentistry</a></td>
</tr>
<tr>
<td>University of Iowa College of Pharmacy</td>
<td>A top-tier college of pharmacy offering bachelor's, master's, and Ph.D. programs.</td>
<td><a href="https://pharmacy.uiowa.edu">University of Iowa College of Pharmacy</a></td>
</tr>
<tr>
<td>University of Iowa College of Nursing</td>
<td>A fully accredited nursing program preparing nurses for all levels of care.</td>
<td><a href="https://nursing.uiowa.edu">University of Iowa College of Nursing</a></td>
</tr>
<tr>
<td>University of Iowa College of Social Work</td>
<td>A program that prepares students for social work practice at the baccalaureate and master’s levels.</td>
<td><a href="https://socialwork.uiowa.edu">University of Iowa College of Social Work</a></td>
</tr>
<tr>
<td>University of Iowa College of Public Health</td>
<td>A program that prepares students for careers in public health.</td>
<td><a href="https://publichealth.uiowa.edu">University of Iowa College of Public Health</a></td>
</tr>
</tbody>
</table>

### Courses

#### Primarily for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20:0000</td>
<td>Core Curriculum Education Internship</td>
<td>6.0</td>
<td>A program for incoming freshmen to explore different academic programs.</td>
</tr>
</tbody>
</table>
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus IV 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.
22M:41 Differential Equations for Engineers 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.

Other Required Courses
Students also must take the following:
20-17-19 Introductory Physics I-II 12 s.h.
20-115 Intermediate Mechanics 3 s.h.
20-116 Introductory Quantum Mechanics 3 s.h.
20-118 Statistical Physics 3 s.h.
20-130 3 s.h.
20-132 Intermediate Laboratory (two semesters) 4 s.h.

Two additional courses, one of each at the 300 level, selected from:
29-117 Optics 3 s.h.
29-128 Electronics 4 s.h.
29-132 Intermediate Laboratory (third semester) 2 s.h.
29-171 Mathematical Methods of Physics 3 s.h.
29-181 Atomic Physics 3 s.h.
29-192 Elementary Particles and Nuclear Physics 3 s.h.
29-193 Introduction to Solid State Physics 3 s.h.
29-194 Plasma Physics 3 s.h.

An additional 5 or more hours of introductory course work in another science or engineering field, including computer science but not mathematics.

Undergraduate majors who plan to pursue graduate studies are advised to go beyond the minimum requirements specified above if possible. Further work in mathematics, however, only 50 semester hours of 200-level courses could count toward a single major bachelor's degree.

Bachelor of Arts in Physics

The B.A. program is designed for students who wish to gain considerable knowledge of physics but do not plan a research-oriented career in physics. This degree program is appropriate for those planning careers in secondary school teaching, technical writing, and science-related administration, business, technical writing, or secondary school teaching (see "Science Education" in the section of the Catalog and in the College of Education section 3). 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 Bachelor of Arts with a major in physics.
22M:25-26 Calculus I-II 8 s.h.
22M:35-36 Engineering Calculus I-II 8 s.h.
20-17-18 Introductory Physics I-II 8 s.h.
20-11-12 College Physics 8 s.h.
20-19 Introductory Physics III 4 s.h.
20-15 Intermediate Mechanics 3 s.h.
20-118 Statistical Physics 3 s.h.
20-128 Electronics 4 s.h.
20-129 Electricity and Magnetism 3 s.h.
20-132 Intermediate Laboratory (two semesters) 4 s.h.

An additional 12 semester hours or more of science in a thematic area as approved by the student's advisor or the course work required for another certification.

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 careers or advanced study in astrophysics, radio astronomy, or space science.

The following courses or their equivalents are required for the Bachelor of Science with a major in astronomy. Students must select Group 1 or Group 2.

Required Courses

Group 1
22M:25-26 Calculus I-II 8 s.h.
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:30 Introduction to Linear Algebra 4 s.h.
22M:38 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.
22M:41 Differential Equations for Engineers 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.

Other Required Courses
Students also must take the following:
20-17-19 Introductory Physics I-II 12 s.h.
20-115 General Astronomy 6 s.h.
20-115 Intermediate Mechanics 3 s.h.
20-116 Introductory Quantum Mechanics 3 s.h.
20-199-200 Introduction to Astrophysics I-II 6 s.h.
20-130-131 Electricity and Magnetism 6 s.h.
20-132 Intermediate Laboratory 2 s.h.
20-137 Astronomical Laboratory 2 s.h.
20-191 Atomic Physics 3 s.h.
20-194 Plasma Physics 3 s.h.

Undergraduate majors who plan to pursue graduate studies are advised to go beyond the minimum requirements listed above as feasible, by taking one or more of the courses listed below. However, only 50 semester hours of 200-level courses can 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 astronomy. This degree program is appropriate for those planning careers in secondary school teaching, technical writing, and science-related administration (see "Science Education" in this section and the College of Education section of the Catalog. The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides 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.
22M:35-36 Engineering Calculus I-II 8 s.h.
20-17-18 Introductory Physics I-II 8 s.h.
20-115 General Astronomy 6 s.h.
20-171-172 Mathematical Methods or Physics 8 s.h.
20-195 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 advisor. For general requirements of the College of Liberal Arts, see the College of Liberal Arts Writings of the Catalog.

Honors

Junior and senior majors who are members of the University Honors program may spin 6 s.h. seminar hours of 2009 Honors Seminar and conduct an independent 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
Minor in Physics

A program of physics courses consisting of the 15 semester hours, with a minimum grade-point average of 2.00. The 15 semester hours should include 6 semester hours of upper-division physics courses taken at The University of Iowa, including 20:10 (pre-requisites 20:7 and 20:18) and all 100-level physics courses.

Minor in Astronomy

A minor in astronomy requires 15 semester hours of credit in astronomy courses with a minimum grade-point average of 2.00. The 15 semester hours should include 6 semester hours selected from the following:
20:11-120 Introduction to Astrophysics I
20:11-127 Astronomical Laboratory

An additional 6 semester hours of these courses or of 100-level 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. The Master of Science—either thesis or critical essay—is the terminal degree offered in astronomy by the M.S. level may qualify for a Ph.D. in physics with specialization in astronomy or astrophysics. An M.S. is not portable to the Ph.D.

The Department of Physics and Astronomy participates in an interdisciplinary doctoral program with the Department of Mathematical Sciences (see the Graduate College section of the Catalog). Each entering graduate student is assigned a faculty advisor, who assists in preparing a plan of study and in guiding the student's progress. Graduate students become candidates for the advanced degree in physics or astronomy only after passing a qualifying examination in all principal areas of physics at the level of advanced undergraduate work. The examination is given during the first week of the second semester to which year and shall be taken by all first-year graduate students. After a student has passed a research seminar, or the appropriate thesis or essay advisor, the student's thesis advisor shall be the chair of the 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 for the 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 original experimental or theoretical investigation by the candidate. No more than 6 of the minimum 30 semester hours may be for research (20:281 Research). The program for the M.S. with a critical essay requires 30 semester hours of graduate work (100- or 200-level courses), an independent study is the dissertation 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 for the critical essay (20:220 Individual Critical Study). Up to one-third of the graduate program may be 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 satisfactory completed the following courses or their equivalents as undergraduates or graduate courses:
20:11 Intermediate Mechanics 3 s.h.
20:11-126 Quantum Mechanics 3 s.h.
20:21-118 Statistical Physics 3 s.h.
20:12-120 Electricity and Magnetism 6 s.h.
20:12-122 Intermediate Laboratory (two semesters) 4 s.h.
20:12-123 Advanced Laboratory (two semesters) 4 s.h.
20:12-171-172 Mathematical Methods of Physics 6 s.h.
20:12-191 Atomic Physics 3 s.h.

Two additional courses selected from:
20:12-126 Quantum Mechanics
20:12-132 Elementary Particles and Nuclear Physics
20:12-133 Introduction to Solid State Physics
20:12-134 Plasma Physics

The student's plan of study should provide for at least one advanced course in a supplementary area.

Students who fail to pass the departmental written examination in the M.S. if they fail the following requirements: complete 30 semester hours of 100- or 200-level courses,
write a thesis or critical essay,
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Financial Aid

Students qualified for graduate study are encouraged to look into fellowship and scholarship opportunities. Inquiries should be directed to the department chair.

Research and Facilities

The department has an excellent library and a number of well-equipped teaching and research laboratories. Sev'l VAX and SUN workstations are available to all faculty, and the associated facilities are located in the Department's West Computing Center.

Experimental research is conducted in the Astronomy (optics and radio), atomic and molecular physics, electronic particle physics, laser physics, nuclear physics, plasma physics, solid state physics, and space physics. Extensive facilities are available for research on specialized research equipment forfering and for analyzing of data. A versatile 6.0-MeV Van de Graaff accelerator has been used in studies of nuclear reactions induced by hydrogen, helium, lithium, and beryllium nuclei with beams energies up to 14 MeV. Experiments have also been made to study the effects of heavy ions. Use of the accelerator has been limited to the use of small national accelerators in the United States and Europe. Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, composites, and high-temperature superconductors are included in the experimental solid state program, as are surface studies of metals and semiconductors. Several experiments are performed in the development of new techniques, which are used to study confinement, nonlinear waves, and turbulence effects in plasmas, lasers, and plasmas. State-of-the-art laser systems are available for high-resolution spectrophotometer measurements and ultrasharp pulse-probe studies of molecular structures, collisional relaxation and nonlinear optical effects in atomic and molecular systems and semiconductors materials, and for plasma diagnostics.

Instrumentational research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Argonne National Laboratory, Stony Brook University Research Center, CERN in Switzerland, Fermilab in Germany, and other international laboratories. The present generation of particle experiments has been designed to probe both the strong nuclear force and the weak interactions.

The department is well-equipped for research in observational astronomy. The primary optical telescopes, a 24-inch reflector with a CCD camera, is used for solar, planetary, and cometary research. The department also maintains a fully automated 14-inch telescope with CCD cameras and a 4.5-meter radio telescope on campus for instructional use and undergraduate research. Research programs in geologic and extragalactic radio astronomy is carried out using the facilities of the National Radio Astronomy Observatory, including the Very Long Baseline Array and the Very Long Base Line, one element of which is ten miles north of campus. Current long-term research activities include studies of extragalactic radio sources and OH masers. Students and faculty also conduct research programs using the 350-foot National Radio Astronomy Observatory for the Very Large Telescope, the United International Telescope, and the United International Telescope.

Active research is carried on in astrophysics; atomic, molecular, and optical physics; physical chemistry; particle physics; mathematical physics; nuclear physics; plasma physics; solid-state physics; and space physics. Much of the numerical work for this research is performed on supercomputers located around the United States. An active mathematical physics section fosters the exchange of ideas between mathematics and physics.

The major goal of Iowa's program in experimental and theoretical physics is the study of cosmic and adiabatic phenomena, magneto-optic physics, and superconducting phenomena. Facilities are available for studying the effects of magnetic fields on superconductors and normal surface transitions. Experiments have been performed in a high magnetic field on a variety of materials, including superconductors, iron, and niobium. The experiments are performed in a high magnetic field on a variety of materials, including superconductors, iron, and niobium.

Courses

Prerequisites and corequisites are specified in the guide and may be waived by the instructor. Students may not repeat an elementary course for credit or grade points unless they have completed a more advanced course for which the elementary course is, if not equivalent, is a prerequisite.

Physics—Primarily for Undergraduates

20:06 Cooperative Education 0.0 h.

20:16 Clustering and Physics of the Universe 3.0 h.

20:17 Clustering and Physics of the Universe 3.0 h.

20:18 Physics 4.0 h.

20:19 Physics 4.0 h.

20:20 Physics 4.0 h.

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20:34 Physics 4.0 h.

20:35 Physics 4.0 h.

20:36 Physics 4.0 h.
Undergraduate Programs

Bachelor of Arts

Students seeking the B.A. degree with a major in political science must complete 33 semester hours of coursework in political science, as follows:

30:1 Introduction to American Politics 3 s.h.
40:36 Introduction to Policy Analysis 3 s.h.
40:40 Introduction to the Politics of the International System 3 s.h.
40:41 Introduction to the Politics of the Second World 3 s.h.
40:42 Introduction to the Politics of the Third World 3 s.h.
40:50 Introduction to Political Behavior 3 s.h.
40:60 Introduction to International Relations 3 s.h.
40:61 Introduction to American Foreign Policy 3 s.h.
40:70 Introduction to Political Communication 3 s.h.

Students must earn at least 18 semester hours in political science courses numbered 100 or above credit from 30:192 Washington Internship cannot be included in this total. At least 12 of the required 18 semester hours must be taken in regularly scheduled classroom work. Transfer students must take at least 9 of the 33 semester hours of work in political science at The University of Iowa.

Students must maintain at least a 2.00 grade point average in all political science courses and in all political science courses taken at The University of Iowa.

Bachelor of Science

The B.S. degree requires three semesters of mathematics prerequisites. The following sets of courses are approved:

20:17 Quantitative Methods I or
20:25 Calculus I 4 s.h.
20:10 Introduction to Statistical Methods 3 s.h.
20:19 Introduction to Statistical Methods 3 s.h.
20:17 Quantitative Methods II or
20:25 Calculus II 4 s.h.
6K:51 Statistical Analysis or 6E:55 Econometrics 3 s.h.
20:25 Calculus I 4 s.h.
20:25 Calculus II 4 s.h.
20:25 Introduction to Statistical Methods 3 s.h.

Other sets of courses may be used with written approval of the director of undergraduate study in political science. A 2.00 grade point average is required.

Education Major

Undergraduates planning to emphasize political science in their teacher training should consult the College of Education for requirements. The courses 30:1 Introduction to American Politics and 30:11 The American Political System fulfill the Iowa teacher certification requirements.

Honors

The program leading to a B.A. or a B.S. with honors in political science is open to students with a minimum cumulative grade-point average of 3.50 overall in political science and a cumulative grade-point average of at least 3.20. Students are encouraged to take upper-division honors seminars as often as possible, although the program honors only 9 semester hours of upper-division honors course work with a grade of B or higher in each course.

Honors students must complete 30:100 Honors Seminar or the Study of Politics, preferably in sophomore. They must also take at least one additional upper-division honors seminar, 30:181 Honors Seminar on American Politics, 30:182 Honors Seminar on Political Theory, 30:183 Honors Seminar on Comparative Politics, or 30:184 Honors Seminar on International Politics. The last 3 semester hours required for graduation with honors in political science may be earned by completing 30:185 Honors Research Project, 30:186 Honors Senior Thesis, or a 3-hour honors seminar. Contact the department director of honors 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 100 and above. Credit from 30:192 Washington Internship cannot be applied to the minor. The minor requires:

Graduate Programs

The department has a program leading to a Doctor of Philosophy in political science for students planning academic careers. The department maintains usually a minor degree only as a preliminary step toward the Ph.D.

Master of Arts with Thesis

To earn an M.A. in political science, students must complete at least 20 semester hours with a grade-point average of at least 3.25, submit a thesis and pass a final oral examination. No more than 8 semester hours of credit for thesis preparation may be counted toward the 20 semester-hour minimum requirement. The final oral examination covers both thesis and course work.

Master of Arts without Thesis

If the evaluation committee certified at the end of the student's first year of coursework finds that a student's work provides sufficient evidence of research and writing skills ordinarily demonstrated in a master's thesis, it may proceed. Students who do not qualify as proceed with a doctoral program without writing a master's thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.75 and review of the student's record by a final examination committee, which may waive the final oral examination.

The same requirements apply when a first-year evaluation committee finds that the quality of a student's work is inadequate for recommendation toward the Ph.D. but adequate for processing with the master's program. The committee may recommend that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy

The Ph.D. program in political science is designed to prepare students for research, teaching, and advanced graduate work. The program consists of course work and a comprehensive examination. The comprehensive examination includes a written examination and an oral examination. The student must pass the comprehensive examination before entering the dissertation phase of the program.

Curriculum

Doctoral study usually lasts four years. The first year's curriculum for all students consists of core courses outside divided between substance and methodology. Emphasis is on basic research methodology and graduate research methods—those today's political scientist must understand and use. Special attention is given to research design, collection of observations, analysis and interpretation of data, and computer programming. A large portion of the first year's program is devoted to seminars in theses and dissertations. Students must take one comprehensive examination at the end of the third year. The fourth year is spent on dissertation research and writing. Students who do basic research and gather data almost always require a fifth year to complete the dissertation.
30.345 Political Psychology 3.4.6. Political psychology (also called political psychodynamics) studies the role of cognitive, affective, and behavioral processes in the political behavior of individuals and groups. It examines how political events and policies influence people's attitudes, beliefs, and actions.

30.354 Political Socialization 3.4.6. Political socialization refers to the process by which individuals learn about politics and become socialized into political behavior. This process includes exposure to political information, participation in political events, and socialization through family, peers, and the media.

30.367 Public Opinion and Electoral Behavior 3.4.6. Public opinion and electoral behavior are closely related, as public opinion can influence voting behavior and, in turn, can be influenced by electoral outcomes.

30.368 Foreign Policy 3.4.6. Foreign policy refers to the strategies and actions taken by a government to influence the political, economic, and social developments of other countries. It involves a combination of diplomatic, economic, and military tools.

30.369 Nuclear Non-Proliferation 3.4.6. Nuclear non-proliferation refers to efforts to prevent the spread of nuclear weapons and to reverse or roll back existing nuclear weapons programs. It is a critical aspect of international security.

30.369 Security and International Relations 3.4.6. Security and international relations refer to the study of how states, international organizations, and other actors interact to promote or protect their interests. It includes the analysis of conflict, cooperation, and diplomacy.

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30.370 Social Movements and Social Change 3.4.6. Social movements and social change refer to the processes by which groups come together to promote a common goal and bring about social change. These movements can be based on a variety of issues, including economic, social, and political concerns.

30.380 Political Communication and Cognition 3.4.6. Political communication and cognition refers to the study of how people think about and process political information. It includes the study of how people form political attitudes and beliefs, and how they use that information to make political decisions.

30.391 Political Psychology 3.4.6. Political psychology (also called political psychodynamics) studies the role of cognitive, affective, and behavioral processes in the political behavior of individuals and groups. It examines how political events and policies influence people's attitudes, beliefs, and actions.

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HONORS

The department has an active honors program open to majors with at least a 3.20 grade-point average in the junior year. The program includes research seminars and individual research collaborations with faculty members. Students usually are selected to participate in the department's senior seminar in Psychology during the spring semester of their junior year. Interested majors should contact the department honors advisor early in their junior year.

MINOR

A minor in psychology is an attractive option to students from a variety of disciplines. A minor requires 15 semester hours at credit with a minimum grade-point average of 2.00. At least 12 of those 15 semester hours must be in upper-level courses in this department; this includes all 100-level courses and 31-43. Departmental options can help students identify courses for a minor that complement the student's major.

AREA ELECTIVES

Area offerings vary from semester to semester. Prior to each registration period, students should check the latest version of the bulletin Undergraduate Psychology at Iowa and the current Schedule of Courses.

An approved statistics course is a prerequisite to 240-level courses. Psychology majors in the B.A. program, the statistics course must be 7725 Elementary Statistics and Inference (same as 23525) or one of the following courses; the B.S. program, the statistics course must be 7725. Introduction to Social Psychology or 7725 Introduction to Statistical Methods in the Social Sciences 220. Departmental options are available to non-psychology majors.

ANIMAL BEHAVIOR AND BIOPSYCHOLOGY

31:12 Fundamentals of Neurophysiology 3 s.h.
31:17 Introduction to Comparative Psychology 3 s.h.
31:123 Psychology of Learning 3 s.h.
31:124 Psychology of Personality and Psychopathology 3 s.h.
31:128 Introduction to Behavioral Pharmacology 3 s.h.
31:134 Animal Aspects of Behavior 3 s.h.
31:132 Motivation 3 s.h.
31:135 Principles of Behavioral Analysis 3 s.h.
31:136 Psychology of Pain and Analgesia 3 s.h.

CHILD AND DEVELOPMENTAL PSYCHOLOGY

31:14 Introduction to Child Development 3 s.h.
31:101 Development of Children's Social Behavior 3 s.h.
31:116 Learning and Motivation in Children 3 s.h.
31:114 Cognitive Development of Children 3 s.h.
31:112 Intellectual Development 3 s.h.
31:106 Developmental Psychopathology 3 s.h.

CLINICAL PSYCHOLOGY

31:133 Introduction to Clinical Psychology 3 s.h.
31:195 Personality 3 s.h.
31:109 Psychology of Aggression 3 s.h.
31:123 Health Psychology 3 s.h.
31:168 Schizophrenia 3 s.h.
31:162 Depression and Mania 3 s.h.
31:163 Abnormal Psychology 3 s.h.
31:166 Developmental Psychopathology 3 s.h.
31:170 Behavior Modification 3 s.h.

COGNITIVE PSYCHOLOGY

31:146 Introduction to Mental Processes 3 s.h.
31:110 Learning and Motivation in Children 3 s.h.
31:115 Language Processing 3 s.h.
31:119 Memory and Cognition 3 s.h.
31:136 Psychology of Thinking 3 s.h.
31:133 Fundamentals of Sensation and Perception 3 s.h.
31:147 Introduction to Psychological Measurement 3 s.h.
31:150 Human Factors Engineering 3 s.h.

SOCIAL PSYCHOLOGY

31:15 Introduction to Social Psychology 3 s.h.
31:102 Interpersonal Influence 3 s.h.
31:103 Development of Children's Social Behavior 3 s.h.
31:106 Attitude Change 3 s.h.
31:107 Environmental Stress 3 s.h.
31:106 Small Group Processes 3 s.h.
31:126 Research in Nonverbal Communication 3 s.h.
31:134 Psychology and the Law 3 s.h.
31:143 Psychology of Intergroup Relations 3 s.h.

*These courses may be counted in either—but not both—of the areas indicated.

GRADUATE PROGRAM

The graduate program in psychology is designed primarily for students seeking the Ph.D. Except in very special circumstances, applications are considered only for that degree. For students entering without previous graduate work, it is a four-year program; those entering with previous graduate training require two to four additional years in this department, depending on the nature of the earlier preparation. The Ph.D. program has a strong emphasis on preparation for research, teaching, and scholarly endeavor, whether in academic settings or in industrial, governmental, or medical institutions.

The intent is to produce graduates who are deeply committed to the study of psychology, familiar with fundamental knowledge about psychological processes, well-trained in the methods and techniques for careful investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society.

Graduate training is organized in four broad training areas: clinical psychology, human experimental psychology, neuroscience and behavior, 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 theoretical materials and methods of investigation central to that subdiscipline. While pursuing specialty training, all students must meet course requirements in statistics, research methods, learning, and several content areas other than their primary ones.

The department has three areas of research emphasis that cut across the four training areas and combine methodological expertise of faculty and students with special resources within and outside the department: cognitive psychology, developmental psychology, and health psychology. Students who have particular interests in any of these areas 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 areas. Many faculty members have both individual and collaborative research projects that contribute to the advancement of one or more of the research areas.

Consequently, students can easily complete the requirements of a training area while developing research knowledge and skills in one or more of the research areas. The training area programs are sufficiently flexible to permit students to develop substantial competence in a second training area. Several joint programs have been formulated and others can be developed as student interest dictates. A joint program involves meeting course work in two areas, and research supervision or co-supervision by faculty members from both areas. The department also is prepared to help students develop additional expertise in any of the following interest areas: human factors, aging, organizational behavior, social behavior, perception and cognition, and cognitive science.

Preparation in one of these interest areas involves some study at an intermediate level in the department, selected courses in other departments of the University, and participation in one or more research projects in the interest area.

DOCTOR OF PHILOSOPHY

The Ph.D. requires satisfactory completion of at least 72 semester hours of graduate credit in psychology, including at least 33 semester hours in courses that are prescribed for the graduate student's program. Through one of several options, requirements in statistics and research methods, and in learning, a course in the history and/or philosophy of psychology is strongly encouraged. Students also are expected to take sufficient core courses 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 three training areas and depends on the individual student's background and interests.

During each of the first three semesters, graduate students ordinarily take some courses; for example, a general course, as much as possible of the basic research methods course, and an outside area elective. Students also become familiar with the general research strategies, and special techniques in one or more research areas through engagement in individual and supervised research projects. This research participation—which may be with one faculty
with clinical material and competes in the application of clinical skills, the department closely tracks intern 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 psychopathology, personality, aggression, the affective disorders, behavioral and cognitive therapies, child psychology, and clinical health psychology. Faculty members collaborate actively with colleagues from departments, such as coronary care, psychiatry, pediatrics, obstetrics and gynecology, surgery, and from other units, such as the Center for Health Services Research, the School of Social Work, and nearby area education agencies. Partly as a consequence of such collaboration, there are several topics in health psychology in which clinical faculty members are prepared to offer research supervision. Within the department, joint training programs combining a clinical specialty with work in other training areas have been established and are available to students with strong interest in new specialty areas.

Advanced students have opportunities to gain additional practical experience through placement in clinical facilities maintained by local, state, and university agencies. Students in the clinical program who wish to have the designation "clinical psychology" on their official resume must satisfactorily complete a one-year internship at an approved agency before receiving the doctoral degree. The internship ordinarily comes after completion of all course work of and must, for all, of the dissertation project.

Human Experimental Psychology

Students affiliated with the human experimental program concentrate their training in the broad area of perception and cognition, information processing, and learning. Current faculty members specialize in such areas as: learning, memory, and problem solving in children; language; memory; psychology; psychophysiological scaling; signal detection theory; sensory discrimination; Waugh's code, human judgment, and decision making; information processing; visual perception; and cognitive developmental.
To graduate with a B.A. in religion, students must take 15 semester hours in foundational studies in historical religious traditions distributed among the following three areas:

WESTERN RELIGIOUS TRADITIONS
Six semester hours from the following:
32:1 1 Judeo-Christian Tradition 3 s.h.
32:2 2 Quest for Human Destiny 3 s.h.
32:2 11 The Testament Survey 2 s.h.
32:2 12 Old Testament Survey 2 s.h.
32:2 15 New Testament Survey 2 s.h.
32:2 20 Religion in American History 3 s.h.

ASIAN RELIGIOUS TRADITIONS
Six semester hours from the following:
32:2 Living Religions of the East 3 s.h.
32:2 8 Asian Humanities: India 3 s.h.
32:2 9 Asian Humanities: China 3 s.h.
32:2 13 Buddhist Worlds and World Views 3 s.h.

THEORETICAL APPROACHES TO RELIGION
Three semester hours from the following:
32:2 Religion and Society 3 s.h.
32:2 10 Introduction to Religious Studies 3 s.h.

ADDITIONAL REQUIREMENTS
Students must take 12 semester hours of continuing studies in one of the following six areas of concentration, grouped in three divisions: historical traditions, thought and culture, and cross-cultural studies. Listed are approved courses for each concentration are available from the School of Religion office. The concentrations are designed to give students greater flexibility in fulfilling requirements for a religious major.

HISTORICAL RELIGIOUS TRADITIONS
Judaism, Christianity, and Islam
Religions of India, China, and Japan
The Bible and its contexts

RELIGIOUS THOUGHT AND CULTURE
Theology and ethics
Metaphysics and otherworlds
Religion, literature, and the arts

CROSS-CULTURAL STUDIES IN RELIGION
Religion in ancient civilizations
Religion in medieval societies
Religion in the modern world

SENIOR SEMINAR
All students must take 32:1 96 Senior Majors Seminar for 3 semester hours.

HONORS
Students with a 3.30 overall grade-point average are eligible to register for the honors program in religion. To complete the religion major with honors, students must take 32:1 97 Honors Tutorial (3 s.h.) and 32:1 98 Honors Essay (3 s.h.) under supervision of a faculty advisor. They must complete the honors thesis essay. Copies are submitted both to the School of Religion and to the University Honor Program.

MINOR
A minor in religion requires 15 semester hours of coursework in religion courses with a minimum grade-point average of 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 32-100 and above.

GRADUATE PROGRAMS
The School of Religion prepares a select number of graduate students to become specialists in the study and teaching of religion.

MASTER OF ARTS
There are two main, thesis and non-thesis, options. MA In both, students must earn a minimum of 36 semester hours in the School of Religion. Most of these will be earned in courses that fall into one of the areas of concentration: the Hebrew Bible and its early interpretation; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology, ethics, and culture; and history of Asia religions.

Students in the thesis program take at least one seminar in a two-semester course and count the thesis for 6 of the semester hours required. Students in the non-thesis program take at least two seminars.

A maximum of 6 semester hours of graduate work in religion may be transferred to the program from another accredited graduate or professional school. The student's committee must approve a program of study, including course work and examinations for language and other research topics.

All students are required to take a written M.A. examination that tests competence in one of the areas of concentration.

MASTER OF ARTS IN RELIGION AND HEALTH
Study of the role of religion in illness and health requires a combination of theoretical and clinical investigation. The University of Iowa Hospitals and Clinics provide the primary setting for research and training in this program.

Students may choose a thesis or non-thesis program. In either, they are required to earn 36 semester hours. Students in the thesis program take one seminar and may count the thesis for 6 semester hours toward the degree. Students in the non-thesis program take two seminars.

A maximum of 6 semester hours may be transferred from another accredited graduate or professional school.

All students must complete a one-semester unit of 32:245 Clinical Study of Religion or present equivalent substitute experience. The program also includes required courses in religion and personality and at least four courses (for a minimum of 10 semester hours) in one other area of concentration in the School of Religion: the Hebrew Bible and its early interpretation; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology, ethics, and culture; and history of Asia religions.

The student's advisory committee may require languages or other research tools. All students must take an M.A. examination.

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 for advanced effective teaching and to foster the generation of new knowledge. As teaching assistants, Ph.D. students have the opportunity to develop teaching skills.

Candidates for the doctorate must complete a minimum of 72 semester hours of graduate coursework, of which 9 semester hours must be taken outside the School of Religion. A minimum 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 Asia religions.

No later than the middle of the student's fourth semester in residence, the graduate student decides whether to apply for candidacy or to inaugurate studies in one of the Ph.D. programs. The student must take 32:200 Colloquium Introduction to the Graduate Study of Religion; demonstrate evidence of the ability to write scholarly papers; judgment is based on a series of papers, one for each completed semester of residence, which the program faculty has previously judged to represent satisfactory progress toward the degree; have a cumulative grade-point average of at least 3.20; and satisfactory progress in the language requirements appropriate to his or her program.

All candidate must pass an oral examination in the dissertation study in religion.

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.
Courses

For Undergraduates

General Education

10:1 History I
4.0
10:2 English 1
4.0
10:3 Mathematics 1
4.0

For Graduates

10:10 Seminar in History of Rhetoric: Modernism and Neorhetoric
3.0
10:11 Seminar in Rhetoric: Classical
3.0
10:12 Seminar in Rhetoric: Modernism and Neorhetoric
3.0

RUSIAN

Chad: Ray J. Parent, Jr.
Professor emeritus, LAMBERT, Ray J. Parent, Jr., HARRY B. WITCO
Professor emeritus, HENRIE SMITH
Associate professor, VADIS KEMP, CHRISTOPHER A. VADIS
Assistant professors, MARI J. GOSSEL, MARSHAL A. MILL

Unpublished degrees: P.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
FINANCES Area Courses
Course descriptions are available in the appropriate departmental sections of the Catalog.

ECONOMICS
- 48:001 Principles of Microeconomics 3 s.h.
- 48:002 Principles of Macroeconomics 3 s.h.
- 48:125 International Economics 3 s.h.
- 48:133 Comparative Economic Systems 3 s.h.
- 48:164 The Soviet Economy in Transition 3 s.h.
- 48:197 Honors Seminar arr.

*These courses are prerequisites to the economics curriculum as an area of concentration, they do not count toward the 33 semester hours of course work required for the Bachelor of Arts.

HISTORY
- 16:051 Colonialism for History Majors 3 s.h.
- 16:174 Medieval Russia 3 s.h.
- 16:175 Modern Russia 1820-1958 3 s.h.
- 16:176 Imperial Russia 1599-1801 3 s.h.
- 16:177 Imperial Russia 1801-1917 3 s.h.
- 16:19 Soviet Union 1917-1952 3 s.h.
- 16:179 Soviet Union 1953-1991 3 s.h.

JOURNALISM AND MASS COMMUNICATION
- 19:155 Mass Media and Society 3 s.h.
- 19:156 Comparative Communication Systems 3 s.h.
- 19:181 Readings in Communication and Mass Communication 1-3 s.h.
- 19:190 Undergrad Research 1-3 s.h.

POLITICAL SCIENCE
- 30:41 Introduction to the Politics of the Modern World 3 s.h.
- 30:41 Soviet and Post-Soviet Communist and Politics 3 s.h.
- 30:42 Politics in Post-Communist Eastern Europe and Asia 3 s.h.
- 30:47 Ethnicity, Language, and Religion in the Former Republics of the Soviet Union 3 s.h.
- 39:156 Politics of Ethnic and Cultural Conflict 3 s.h.
- 39:160 Nuclear Strategy and Arms Control 3 s.h.
- 39:168 Foreign Policies of the Former Soviet Bloc 3 s.h.
- 39:175 Russian Seminar on Comparative Politics 3 s.h.
- 39:180 Women Seminar on International Politics 3 s.h.

RUSSIAN
- 41:151 Russian Literature in Transition (1800-1860) 3 s.h.
- 41:152 Russian Literature in Transition 1867-1917 3 s.h.
- 41:155 Russian Literature Before 1825 3 s.h.
- 41:181 Soviet Literature to 1954 3 s.h.
- 41:182 Soviet Literature Since Stalin 3 s.h.
- 41:185 Russian Culture 3 s.h.
- 41:186 Russian History 3 s.h.
- 41:191 Russian Civilizations 2-3 s.h.
- 41:199 Russian 3 s.h.
Earth Science Emphasis
At least 25 semester hours must be earned in 100-level courses.

Science
12-15 Introduction to Geology
12-15 Environmental Geology
Problems
12-16 Evolution of the Earth
12-16 Evolution and the History of Life
12-41 Meteorology
12-109 Advanced Geologic History:
As an Area Perspective
29-111 College Physics
29-12 College Physics
12-180 Solid Earth Geophyts
29-41 General Astronomy
44-101 Climatology
4-13 Principles of Chemistry I
2-16 Principles of Chemistry Lab I
12-149 Elements of Geomechanics
Earth science electives

Application of Science
97-102 Social and Educational Applications of Earth Sciences and
Environmental Science
97-103 Social and Educational
Applications of Biological Sciences
97-105 Social and Educational
Applications of Physical Sciences
or
97-104 Problems in Integrating the
Teaching of Environmental Science
Transfer course from applied area such as
engineering, agriculture, and technical schools
may be substituted for 97-103 or 97-105 with the
advisor's approval.

History/Philosophy/Sociology of Science
97-128 Meeting of Science
97-150 Science in Historical
Perspective

Chemistry Emphasis
At least 25 semester hours must be earned in 100-level courses.

Science
4-13 Principles of Chemistry I
4-16 Principles of Chemistry Lab I
4-12 Organic Chemistry I
4-12 Physical Chemistry I
4-14 Organic Chemistry Laboratory
29-111-12 College Physics
and
Physics electives
or
29-17-18 Introductory Physics I-II
and
Physics electives
22M-35-36 Engineering Calculus I-II

Application of Science
97-105 Social and Educational
Applications of Physical Sciences
97-102 Social and Educational
Applications of Earth Sciences and
Environmental Science
97-103 Social and Educational
Applications of Biological Sciences
or
97-104 Problems in Integrating the
Teaching of Environmental Science
Transfer course from applied area such as
engineering, agriculture, and technical schools
may be substituted for 97-103 or 97-105.

History/Philosophy/Sociology of Science
97-128 Meeting of Science
97-150 Science in Historical
Perspective

Physics Emphasis
At least 25 semester hours must be earned in 100-level courses.

Science
29-11-12 College Physics
29-17-18 Introductory Physics I-II
and
Physics electives
22M-35-36 Engineering Calculus I-II

Application of Science
97-105 Social and Educational
Applications of Physical Sciences
97-102 Social and Educational
Applications of Earth Sciences and
Environmental Science
97-103 Social and Educational
Applications of Biological Sciences
or
97-104 Problems in Integrating the
Teaching of Environmental Science
Transfer course from applied area such as
engineering, agriculture, and technical schools
may be substituted for 97-103 or 97-105.

History/Philosophy/Sociology of Science
97-128 Meeting of Science
97-150 Science in Historical
Perspective

Additional physical science electives
(geology, geography, chemistry, physics)

Application of Science
97-102 Social and Educational
Applications of Earth Sciences and
Environmental Science
97-105 Social and Educational
Applications of Physical Sciences
97-104 Problems in Integrating the
Teaching of Environmental Science

History/Philosophy/Sociology of Science
97-128 Meeting of Science
97-150 Science in Historical
Perspective

General Science Emphasis

Science
4-13-14 Principles of Chemistry I-II
4-16 Principles of Chemistry Lab I
4-12 Organic Chemistry I
29-111 College Physics
29-12 College Physics
12-5 Introduction to Geology
2-11 Introduction to Marine
Science electives
Electives must be chosen so there are at least
21 semester hours in either biological sciences,
chemistry, physics, or geology.

Application of Science
Two of the following:
97-102 Social and Educational
Applications of Earth Sciences and
Environmental Sciences
97-103 Social and Educational
Applications of Biological Sciences
97-105 Social and Educational
Applications of Physical Sciences

History/Philosophy/Sociology of Science
97-128 Meeting of Science
97-150 Science in Historical
Perspective

Teacher Licensure

Conditions for a bachelor's degree in science education
may, at different colleges/universities, be decided by
the individual school/college. It is recommended that
students who are interested in the science education
program consult with their advisors and the
admissions committees of the colleges/universities
they are considering.
to the College of Education for admission to the Teacher Education Program. TE students must complete all College of Liberal Arts General Education requirements, the requirements for a science education major, and the following professional education core.

75-101: Psychological Measurement 3 s.h.
75-121: Science Methods 1: Scientific Methodology 2 s.h.
75-121: Science Methods 2: Research, Teaching Strategies, and Curriculum Development for K-12 Science 3 s.h.
75-123: Science Methods 3: Science Laboratory 2 s.h.
75-123: Science Methods 5: Elementary School Special Subject Area Student Teaching 3 s.h.
75-123: Science Methods 6: Individual Projects in Laboratory Practice 3 s.h.
75-127: Science Methods 7: Observation and Laboratory Practice in the Secondary School 3 s.h.
75-127: Science Methods 8: Human Relations for the Classroom Teacher 3 s.h.

Students who complete 75-101 are recommended for K-12 licensure.

Minors in Science Teaching

Six added environments in science are available for persons with majoring minors in other academic areas: biological sciences, chemistry, physics, general science, earth science, and physical science. All require 30-33 semester hours of credit.

Students who wish to pursue a science teaching minor and to qualify for University of Iowa recommendation for teaching licensure should consult a faculty member in science education.

All science teaching minors must take the following:

75-151: Science Methods 1: Elementary School Seminar and Practicum 2 s.h.
75-152: Science Methods 2: Research, Teaching Strategies, and Curriculum Development for K-12 Science 3 s.h.
75-153: Science Methods 3: Science Laboratory 2 s.h.
75-154: Science Methods 4: Elementary School Special Subject Area Student Teaching 3 s.h.
75-155: Science Methods 5: Science Meaning of Science 2 s.h.
75-156: Science Methods 6: Science Perspective 2 s.h.

In addition, they must take the following basic requirement in their chosen minor area.

BIOLOGICAL SCIENCES

2.1: Introduction to Biology 4 s.h.
2.3: Principles of Animal Biology 5 s.h.

67-103: Societal and Educational Applications of Biological Sciences 3 s.h.
67-103: Biological Sciences Electives 3 s.h.
67-103: Chemistry 3 s.h.
4.13: Principles of Chemistry I 6 s.h.
4.16: Principles of Chemistry Lab I 3 s.h.
97-105: Societal and Educational Applications of Physical Sciences 3 s.h.
97-105: Chemistry Electives 10 s.h.

PHYSICS

26-11: College Physics 1 8 s.h.
26-11: Physics Laboratory 8 s.h.

GENERAL SCIENCE

2.1: Introduction to Biology 4 s.h.
1.2: Introduction to Geology 4 s.h.
1.13: Principles of Chemistry I 3 s.h.
1.24: College Physics 4 s.h.
1.24: Calculations elective (97-102 or 97-103 or 97-101) 3 s.h.
1.24: Science Electives 6 s.h.

EARTHSCIENCE

12-12: Introduction to Geology 4 s.h.
12-02: General Astronomy 4 s.h.
19-102: Geology and astronomy electives 11 s.h.
97-102: Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.

PHYSICAL SCIENCE

4.13: Principles of Chemistry I 6 s.h.
4.16: Principles of Chemistry Lab I 3 s.h.
20-11: College Physics I 8 s.h.
20-12: Introduction to Geology 4 s.h.
97-102: Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97-102: Societal and Educational Applications of Physical Sciences 3 s.h.

Special Rules

Since the Science Education Program may involve many faculty advisors and several colleges and departments, some special rules and regulations apply to science education students. They include the following.

1. At least 10 semester hours of graded credit in science must be earned at The University of Iowa.

2. No science courses with the departmental prefix 1-1-5 credit from the CIDP Natural Science General Examination may be used toward the major in science education.

3. Science courses taken in other colleges of the University, Colleges of Engineering and Medicine will not be accepted in lieu of the required course work for the major unless one of the science departments of the College of Liberal Arts certifies in writing to the Office of the Registrar that such a course is equivalent to the one offered in that department.

4. Courses used for the major may not be taken pass/fail/earn credit; 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 elsewhere.

5. Since mathematics forms an integral part of many aspects of modern science, all science education students are urged to complete one prerequisite advanced course 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 97-49 Honors Research Requirements in addition to other science education requirements.

Iowa-SSST and the Iowa Science and Humanities Symposium

The Iowa Secondary Student Training Program (Iowa-SSST) is a special summer program that emphasizes research experience for talented secondary students. Participants register for college credit as undergraduate students and are placed in research laboratories in a variety of science areas. Various programs, such as the Young Scholars and Minority Apprenticeship Programs, are hosts of Iowa-SSST when funding is available.

The statewide Iowa Junior Science and Humanities Symposium sponsored by the U.S. Army Research Office each February involves some 180 students and 40 teachers. The symposium emphasizes career opportunities in science and related fields by focusing on ongoing research science at The University of Iowa.

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 sections 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 two areas of research. Major areas of faculty and graduate students include the following: studies of effective teaching and learning, attitudinal and other affective outcomes of instruction, philosophy and sociology of science, individualized learning, computer-aided learning, classroom instruction studies, creativity, creativity outcomes, perception of learning, intellectual development, and science education in less developed countries and health education.

Graduate Programs
Courses

The following are special courses offered by the Science Education Program to supplement the undergraduate emphasis area in Science education and to provide science options for elementary education majors.

Primarily for Undergraduates
97.05 Cooperative Education Internship 3 half-credit.
97.07 Practicums of Science 4 half-credit.
Science practicums and laboratories. The practicum in the field: sources, focus on problems setting and present skills in the field.
97.30 Investigation in Science 3 half-credit. Open only to secondary education students. May be repeated no more than twice.
97.40 Issues Research Project 1 half-credit.

For Undergraduates and Graduates
97.102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 half-credit. Major issues and effects of earth and environmental sciences, emphasis on contemporary applications in earth's world.
97.103 Societal and Educational Applications of Biological Sciences 3 half-credit. Major issues and effects of biology, how they have been reduced, emphasis on core societal role in biology.
97.104 Societal and Educational Applications of Physical Sciences 3 half-credit. Major issues and effects of physics, how they have been reduced, emphasis on core societial role in physics.
97.106 Societal and Educational Applications of Chemical Concepts 3 half-credit. Major issues and effects of science in society, communication, and learning.
97.107 Techno Ethics 3 half-credit.
Trends in science, society, and ethics; social and ethical issues, scientific and technological change, science, technology, and society.
97.108 Experimental Techno Ethics 3 half-credit. Promote an understanding, methodology of ethical research, current of discussion required.
97.112 Earth and other planets in solar system; Surface, ocean, atmosphere; meteorology; natural disasters.
97.113 Focus on Science Learning/Scientific Literacy 3 half-credit. Trends in science, society, and ethics; social and ethical issues, scientific and technological change, science, technology, and society.
97.120 Science and Science Education 3 half-credit. Focus on science, society, and ethics; social and ethical issues, scientific and technological change, science, technology, and society.
97.123 Science in Social Perspective 3 half-credit. Critical examination of recent scientific events from social, cultural, philosophical viewpoints.
97.130 Science in Historical Perspective 3 half-credit. Science and its impact on contemporary sociopolitical issues from perspectives in social developments.
97.140 Problems in Teaching the Teaching of Science 3 half-credit. Science and its impact on contemporary sociopolitical issues from perspectives and educational implications.

Undergraduate courses in Social Studies, M.A. in Social Studies, Ph.D. in Social Studies.

Undergraduate Program

The major in social studies is an interdisciplinary, professional major. It provides a strong background in law, public relations, urban planning and development, and government service at all levels.

General Program

Requirements for the B.A. in Social Studies. Students complete 60 semester hours of credit earned in departments cooperating in the social studies education program.

Students choose Plan A or Plan B. Both require 60 semester hours of coursework.

Plan A

U.S. history or world history 15 half-credit.
American government/political science 15 half-credit.
In addition, students complete 15 semester hours in each of any two areas chosen from anthropology, economics, geography, psychology, and sociology.

Plan B

Students complete 30 semester hours in one area chosen from American government/political science, anthropology, economics, geography, psychology, sociology, U.S. history, or world history. Students also complete 15 semester hours in each of any two of the remaining disciplines.

There is no separate honors program in social studies. Students who qualify for the University Honors Program are encouraged to do honors work in the social science department in which they wish to concentrate their work.

A global studies certificate may be obtained in conjunction with the social studies major. See "Global Studies" in the section of the Catalog.

Teacher Licensure/Certification Program

Students who want to obtain a teaching license/certificate in history or other social science areas must declare a major in the academic field they want to teach and earn a total of 30 semester hours in that field. They also must complete 15 semester hours in each of two fields related to history or social science. Majors and related fields may be selected from the following: U.S. history, European history, anthropology, economics, sociology, geography, political science, and psychology. Courses must conform to departmental requirements for the major. For more information, students are assigned an advisor in their major area as well as in social studies.

Additional information on social studies teacher licensure/certification programs is available from...
Minor

A minor in social work requires a minimum of 15 semester credit hours in social work courses with a minimum grade-point average of 2.00. At least 12 semester hours must be taken at the University of Iowa in course numbers 42:100 and above. 42:22, or its equivalent at another institution, is a prerequisite to any upper-level social work courses.

Admission

A limited number of students are admitted to the major. Applications are processed each December. Admission to the undergraduate program in social work requires:
- completion of 42:22 (Introduction to Social Work) with a grade of C or higher (can be taken the subsequent year);
- a cumulative grade-point average of at least 2.50; and
- completion of the application process.

Exceptions may be made for persons who do not meet the grade-point average requirement if they are strong candidates on the basis of other criteria.

More information is available from the School of Social Work admissions coordinator.

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 interdisciplinary 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, groups, organizations, and communities in public and private agencies and institutions.

The program is accredited by the Council on Social Work Education (CSWE). The Master of Social Work includes 25 semester hours of foundation level courses and 35 semester hours of advanced-level courses. Students who have a B.S.W. from a CSWE-approved program receive 15 semester hours of advanced standing and earn the degree with 45 semester hours. A limited number of students are admitted to a 50-hour full-time program. All students must earn a minimum of 36 hours after admission to the M.S.W. program.

Up to 14 semester hours of partial advanced standing is possible for students who have completed courses in a CSWE-accredited program but who do not have the degree. Students with equivalent foundation coursework can take departments or programs other than advanced social work programs that pass a qualifying exam for the professional foundation course in order to receive partial advanced standing. Nine to 12 semester hours of graduate study may be allowed for previous graduate work.

The school operates a year-round, segmented 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. in the spring semester of their second year. Those who require 45 semester hours enter the program in the second semester (January). Students in the 30-semester-hour program begin their course work in the third semester (May). The 30-semester-hour program is available only for full-time students.

Part-time students go through the program at a slower pace. Students who need the full 60 semester hours complete the program in four years.

A special intensive summer program has been designed to enable students from Des Moines and the Quad Cities to attend classes in Iowa City.

Students must maintain at least a 3.00 cumulative grade-point average; must be promoted each semester in compliance with the Student Advancement Policy; and must successfully complete a master's comprehensive examination, an integrative paper involving evaluation of practice, prepared in conjunction with a practicum seminar in the final semester. Students must elect a thesis option for credit and use the oral defense as their final examination.

The following is an outline of the full-time, 60-semester-hour program:

- **FIRST-YEAR FOUNDATION**
  - Fall Semester: 42:144 Human Behavior in the Social Environment 4.0 h.
  - 42:142 Intervention Skills Laboratory 1.0 h.
  - 42:143 Social Welfare Policy and Practice 3.0 h.
  - 42:145 Microgroup Laboratory 1.0 h.
  - Elective 3.0 h.
  - **Total** 16.0 h.

- **Spring Semester**
  - 42:144 Social Work Research 3.0 h.
  - 42:145 Organization and Community Practice 3.0 h.
  - 42:147 Racial and Discrimination 3.0 h.
  - 42:204 Foundation Practicum in Social Work 3.0 h.
  - 42:297 Foundation Practicum Seminar 2.0 h.
  - Elective 3.0 h.
  - **Total** 15.0 h.

- **Summer Session**
  - Electives—including replacement for the practice courses 4.0 h. 4.0 h.

- **SECOND-YEAR CONCENTRATION**
  - Fall Semester: 42:250 Family Systems Theory 3.0 h.
  - 42:264 (Interdisciplinary Systems Theory) 3.0 h.
  - 42:267 Advanced Research 3.0 h.
  - 42:295 Advanced Practicum in Family Systems 3.0 h.
  - 42:297 Advanced Practicum in Interdisciplinary Systems 3.0 h.
  - 42:297 Advanced Practicum Seminar in Interdisciplinary Systems 1.0 h.
  - 42:297 Advanced Practicum Seminar in Interdisciplinary Systems I 1.0 h.
  - **Total** 12.0 h.

- **Spring Semester**
  - 42:251 Family Therapy 3.0 h.
  - 42:252 Social Work Practice in Interdisciplinary Settings 3.0 h.
  - 42:252 Family Policy: Domestic and Internationals 3.0 h.
  - 42:297 Advanced Practicum in Family Systems 3.0 h.
  - 42:297 Advanced Practicum in Interdisciplinary Systems 3.0 h.
  - 42:297 Advanced Practicum Seminar in Interdisciplinary Systems II 1.0 h.
  - **Total** 12.0 h.

Concentrations

After admission, students choose between two concentrations: family systems or interdisciplinary systems.

Family and Individual Systems

Designed to prepare students for direct service practice with individuals, families, and small groups, this concentration focuses on therapeutic endeavors with individuals and families.

This type of social work practice, called clinical social work, requires specialized training in various approaches to psychosocial assessment and treatment of individuals and families facing psychological and social issues. It is a core activity in a variety of settings, including family service agencies and mental health centers. The difference in this specialty is that both individual and societal factors are treated with the client who is generally not served by other treatment (i.e., the economically deprived, the mentally retarded, and the institutionalized).

The theoretical basis for this concentration is family systems theory, which emphasizes that interperson interactions occur over intergenerational groups in explaining family behavior. Several approaches are utilized throughout the theoretical framework, but they share common assumptions and practice methods and are long-range. In several elective recommended courses, other
approaches (e.g., psychodynamic, behavioral) are studied and coupled with research approaches. Family policy and its effects on direct practice are studied as are research approaches especially useful in clinical work, such as single-subject, case analysis, and outcome studies.

Interdisciplinary Systems

This concentration emphasizes theoretical knowledge and skills for indirect and direct social work practice in multi-disciplinary settings, such as public and private human service organizations, hospitals, and clinics, schools, businesses and industry, and corrections. It is designed to enable students to collaborate with professionals from diverse disciplines, serve on interdisciplinary assessment and treatment teams, solve complex management and coordination problems, and evaluate programs and policy change that will improve services to clients.

Students learn to assess the needs of clients and to be advocates for their needs across departments and organizational boundaries, as well as across other professions and disciplines.

The effectiveness of social workers as service providers and agents of change requires an understanding of organizational and transactional dynamics as well as knowledge of policy and program development. Students acquire skills related to assessment, integration of service theory with direct and indirect practice, program development, planning, policy making, administration, negotiation, community organization, and social action.

Off-Campus Centers

The full-time program is available in Iowa City and Des Moines. At the end of the first calendar year, some students stay in the Iowa City/Cedar Rapids area for the remainder of their program, including practicum, and some are assigned to Des Moines or the Quad Cities for practicum. Students may need to relocate.

The Des Moines Center, 115 miles west of Iowa City, is located in Iowa's state capital and largest metropolitan area. The Quad Cities Center is located on the Mississippi River, 10 miles east of Iowa City. Full-time students who have a practicum assignment in the Quad Cities usually commute to Iowa City for required courses during the second year of the program. Some elective courses are available in the Quad Cities.

Part-Time Program

The School of Social Work also has a part-time program in three locations: Iowa City, Des Moines, and the Quad Cities. In Iowa City and Des Moines, students are admitted each fall semester. In the Quad Cities, a group of part-time students is admitted every three years; the next group will start in August 1994. Registering for courses prior to the first semester, teach required courses in all centers and are available for their students.

The off-campus programs have been evaluated by CSWE and The University of Iowa Graduate Council as providing a comparable program to that available on the Iowa City campus.

Part-time students complete two courses each spring and fall semester for three or four years. Electives may be taken concurrently during irregular 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 most Iowa summer courses is intensive, short-term, and split session, enabling students from other centers to take campus courses.

Joint Degree Programs

The school has formal agreements with the College of Law and the Department of Urban and Regional Planning for joint degrees. Students must be accepted to each department through its regular admission process. Up to nine semester hours in each program are applied to requirements of the other, thus reducing the time it would usually take to pursue two degrees. Individual arrangements may be made with other departments. Students have pursued joint degrees with the College of Business Administration, College of Education, American Studies Program, School of Religion, School of Journalism and Mass Communications, and others. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Cooperative Programs

In cooperation with the Counselor Education Program in the College of Education, a curriculum has been designed around the requirements of the American Association of Marriage and Family Therapy (AAMFT). Graduates of accredited M.S.W. programs are eligible for associate membership upon fulfillment of certain curriculum requirements at the graduate level. Courses are not automatically accepted; graduates need to demonstrate that they meet requirements, usually by sending course outlines.

The School of Social Work participates in the Aging Studies Certificate Program through the College of Liberal Arts. Students can earn the certificate concurrently with the M.S.W. program; they must apply independently to the coordinator of the Aging Studies Program.

The school also participates with the College of Education to provide curricula that meet requirements for school social work certification in Iowa. Students can earn state certification concurrent with the M.S.W. program. Students apply for certification at the end of the College of Education.

Special Projects, Travel/Study Seminars

Students may become involved in special projects such as the National Resource Center on Family Board Services and the School of Social Work gerontology program.

The school also offers students the opportunity to participate in travel/study seminars in urban, rural, national, and international settings are available.

Admission

The criteria for admission for full-time and part-time study in the 40 and 45 semester-hour M.S.W. programs are:

- a bachelor's degree from an accredited college or university, with a reasonable distribution of courses in the social sciences and humanities;
- a 3.00 or higher grade-point average for the junior and senior years of undergraduate study; or be 12 semester hours in the lower-division course work in the social sciences, humanities, and related fields;
- a Graduate Record Examination (GRE) score; or
- three positive letters of recommendation, including one regarding academic abilities and one or more regarding social service or work experience; and
- a personal statement addressing criteria specified by the School of Social Work.

Previous experience in the human services (volunteer, paid, or employment) is desired. Previous enriching life experience (cross-cultural and international experience and background, and minority status) also are desired.

Foreign applicants must score at least 600 on the Test of English as a Foreign Language (TOEFL).

Applicants who are especially strong candidates on the basis of other criteria may be admitted even if their grade-point average is below 3.00. Since the school seeks to maintain a heterogeneously student body, it makes special efforts to admit students who represent a diversity of social, ethnic, and socioeconomic backgrounds. Students with disabilities also are encouraged to apply.

Applications are accepted beginning September 1 and must be completed by February 1 to be considered for the next academic year. Students seeking the 40-semester-hour program begin in January, and the 45-semester-hour class meets the same academic year. Applicants for the 40-semester-hour program must be completed by January 1.

Additional criteria for admission to the full-time, 40-semester-hour program include:

- a bachelor's degree from a CSWE-accredited social work program;
- a 3.00 or higher grade-point average for the junior and senior years of undergraduate study;
- a Graduate Record Examination (GRE) score;
- a minimum of two years of full-time experience after receipt of a bachelor's degree;
- and completion of a basic statistics course and proficiency in the use of microcomputers (Tutorials received in these two areas are not applied toward the M.S.W. degree).

A complete statement of graduate admissions policy is available upon request.
42-237 Social Work Practice with Children, Youth, and Families 2.5 h.
Prep: for SRU 26 22.2, 22.24, 22.34, 22.36.

42-239 Social Work Practice with Children, Youth, and Families 2.5 h.
Prep: for SRU 26 22.2, 22.24, 22.34, 22.36.

42-251 Family Systems Theory 3 h.
Obligatory in all major programs and those considered to be directed toward families, children, and young adults. Prep: completion of foundation courses or consent of instructor.

42-252 Family Policy, Economics, and Institutions 3 h.
Obligatory in all major programs and those considered to be directed toward families, children, and young adults. Prep: completion of foundation courses or consent of instructor.

42-253 Family Therapy 3 h.
Techniques for assessment, intervention, and evaluation of families. Prep: completion of foundation courses or consent of instructor.

42-254 Fundamentals of the Behavioral Sciences 3 h.
Prep: completion of foundation courses or consent of instructor.

42-255 Human Behavior: Selected Areas 3 h.
Prep: completion of foundation courses or consent of instructor.

42-256 Human Behavior: Selected Areas 3 h.
Prep: completion of foundation courses or consent of instructor.

42-257 Social Work Practice with Children, Youth, and Families 2.5 h.
Prep: for SRU 26 22.2, 22.24, 22.34, 22.36.

42-258 Social Work Practice with Children, Youth, and Families 2.5 h.
Prep: for SRU 26 22.2, 22.24, 22.34, 22.36.

42-259 Sociology of Social Problems 3 h.
Obligatory in all major programs and those considered to be directed toward families, children, and young adults. Prep: completion of foundation courses or consent of instructor.

42-260 Urban Social Problems 3 h.
Obligatory in all major programs and those considered to be directed toward families, children, and young adults. Prep: completion of foundation courses or consent of instructor.

42-261 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-262 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-263 Social Policy and Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-264 Social Policy and Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-265 Social Policy and Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-266 Social Policy and Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-267 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-268 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-269 Social Work Practice in Interdisciplinary Settings 3 h.
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42-270 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-271 Social Work Practice in Interdisciplinary Settings 3 h.
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42-272 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-273 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-274 Social Work Practice in Interdisciplinary Settings 3 h.
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42-275 Social Work Practice in Interdisciplinary Settings 3 h.
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42-276 Social Work Practice in Interdisciplinary Settings 3 h.
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42-292 Social Work Practice in Interdisciplinary Settings 3 h.
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42-293 Social Work Practice in Interdisciplinary Settings 3 h.
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42-294 Social Work Practice in Interdisciplinary Settings 3 h.
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42-295 Social Work Practice in Interdisciplinary Settings 3 h.
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42-296 Social Work Practice in Interdisciplinary Settings 3 h.
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42-297 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-298 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

42-299 Social Work Practice in Interdisciplinary Settings 3 h.
Prep: completion of foundation courses or consent of instructor.

43-1 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-2 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-3 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-4 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-5 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-6 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-7 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-8 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-9 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-10 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-11 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.

43-12 Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of bachelor’s degree in sociology prepares graduates for employment in fields such as social work, law, government, business, or teaching. Prep: completion of foundation courses or consent of instructor.
225-153 Introduction to Probability  3 s.h.
225-154 Introduction to Mathematical Statistics  3 s.h.

All majors are required to take 3 semester hours of course work in at least one of these departments: anthropology, economics, geography, political science, or psychology. A list of complete requirements for a sociology major is available in the department office.

To encourage development of a broad knowledge of sociology, the department requires that majors complete at least one course numbered 100 or above in each of three areas selected from the following six "Advanced Courses" in this section of the Catalog: social theory; socialization of minorities, social psychology; deviation, deviance, crime, and law; family, life-stages, children, and aging, social institutions and social change; community and population; social class, inequality, race, and organizations. This requirement does not apply to minors in sociology.

Departmental requirements are the same for transfer students as for other students. While some courses taken at other colleges are 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 who wish to obtain teacher certification in the social sciences while majoring in sociology should contact the Director of Curriculum and Instruction in the College of Education.

Honors

The University Honors Program provides a stimulating and integrative educational experience for undergraduates, whether they be majors, minors, or pre-majors. The program is designed not only to challenge students, but also to provide them with the opportunity to participate in academic research. Students interested in pursuing an honors program in sociology should contact their advisor for more information.

Minors

In addition to its programs for majors, the department provides supportive course work and a minor in the Social Science field, particularly a social sciences, business administration, elementary education, or numerical. The requirements for a sociology minor are:

- a minimum of 15 semester hours of credit in sociology courses with a grade-point average of 3.00 or higher;
- at least 12 of the 15 semester hours must be taken at The University of Iowa in courses, numbered 34100 and higher, and no course accepted toward the minor may be taken pass/fail.

A brochure describing minors in sociology is available in the department office.

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 in the field of sociology. The doctoral program has a research emphasis and emphasizes preparing sociologists for positions in colleges and universities or research positions in academic, private, and government institutions. Opportunities for research using survey, experimental, and observational methods are readily available in the department.

Master of Arts

The M.A. requires 24 semester hours of the 30 semester hour program. The program without thesis is intended for persons who wish to pursue 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 coursework with grades of B or higher:

- 34201 History of Sociological Theory  3 s.h.
- 34202 Sociological Theory  3 s.h.
- 34214 Elementary Statistics and Data Analysis  3 s.h.
- 34215 Sampling, Measurement, and Observation Techniques  3 s.h.

M.A. in Criminal Justice and Corrections

This program is designed for individuals who wish to work in criminal justice. Since it is assumed that a social science orientation and background is extremely valuable for such work, the major emphasis of the program is in the social science field. It also is recognized that specialized knowledge is especially important for specific criminal justice roles; therefore, students are required to select 15 semester hours of course work in areas such as legal process, administrative procedures, and direct intervention techniques in order to broaden their knowledge. The flexible curriculum allows students, in consultation with their adviser, considerable choice in selecting courses that will best enable them to achieve their career goals.

A limited number of students enter the program each year, so a limited student-faculty ratio is maintained. Internships are available with local criminal justice agencies. Successful completion of the program requires a minimum of 36 semester hours of graduate credit, a 3.00 grade-point average on all work taken, and a master's paper (not a thesis).

Joint Program in Sociology and

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, needed to satisfy the requirements of either degree, toward both the M.A. in sociology and the 90 semester hours required for the J.D.

This cross-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 more courses 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 34316 Intermediate Statistics and Data Analysis and 3 elective semester hours in methodological statistics. Candidates also must pass comprehensive examinations and write a dissertation.

All doctoral candidates are examined in the basic tool areas of sociology—theory, history of theory, methodology, and statistics—and one major and one minor area chosen from the areas represented by the faculty, such as social psychology, deviance, criminology, family, social stratification, organizations, political sociology, theory, methods, and statistics. A description of how these areas are presented is available upon request.

A detailed statement of regulations for graduate study also is available upon request. Prospective doctoral candidates should examine these materials carefully.

Special Workshops

The department organizes a series of workshops each semester on new and interesting research methods that are emerging in the standard methods sequence. Each workshop informs students about the problems for which the method is applicable, gives an introduction to the theory, and shows how the method is actually used in a research setup. Topics covered in recent years include LISREL, meta-analyses, simulation techniques, event history analysis, and time-series analysis.

A long-term workshop on methodology on research methods and methodology, attended by both faculty members and graduate assistants, has been distributed under the title "The Seminar."
34.165 Sociology of Work and Occupations

3 h.b.

Lecture course. Preparatory to sociological, occupational and professional socialization. Theories of socialization and socialization in the workplace and the role of the individual, the family, and the media in the acquisition and maintenance of occupational roles.

34.166 Sociological Research

3 h.b.

Introduction to sociological research methodology. Emphasis on qualitative and quantitative research methods, with an emphasis on critical evaluation of research findings.}

34.253 Seminar: Political Sociology

3 h.b.

Selected topics in political sociology. Graduate standing or consent of instructor required.

34.259 Social Determinants of Health

3 h.b.

Social and environmental factors affecting health outcomes. Current research on the role of social determinants in health disparities, with a focus on race, gender, and class.

34.251 Social Stratification

3 h.b.

Selected theoretical and empirical studies. Graduate standing or consent of instructor required.

34.252 Labor Markets

3 h.b.

Sociological and economic factors and processes influencing labor markets. Topics such as gender, race, and age in labor markets, occupational/stratification and other inequality, and the impact on labor market equality. Graduate standing or consent of instructor required.

34.268 Seminar: Sociocultural Issues in the Family

3 h.b.

Sociocultural and cross-cultural processes that shape family relationships. Emphasis on cultural and social processes in the formation of family relationships, with an emphasis on diversity and difference. Graduate standing or consent of instructor required.

34.284 Seminar: Organizations

3 h.b.

Selected problems in organizational theory. Graduate standing or consent of instructor required.

34.285 Group Organizations

3 h.b.

Production, efficiency, innovation, coordination, conflict, and conflict resolution in the context of human organizations.

34.286 Methods of Organizational Research

3 h.b.

Graduate standing or consent of instructor required.

Teaching

34.382 Seminar: Practicum in Teaching Sociology

3 h.b.

Independent Reading and Research

34.383 Reading and Research Seminar

May be repeated. Consent of departmental adviser required.

34.385 Master's Thesis

4 h.m.

34.386 Ph.D. Dissertation

4 h.d.

SPANISH AND PORTUGUESE

Chair: Emilio Caro

Professors: Anthony R. Pena, Oscar Harte

Associate professors: A. Thomas Douglas, David Closs, Oscar Hernández, E.W. Hings, Joseph Stripp

Assistant professors: George Davis, Walter Deilin, Maria A. Suarez, Enrique Fernandez-Ballesteros, Nydia Gonzalez, Coleman Sefert, Philip Klaw, Thomas S. Lewis, Arthur J. Mohr, Horacio Romero, Mario Santianez, Dean Weitz, Jorge Vargas

Assistant professors: Mauro A. Quintero, Karlsson J. Hawkins, Maria P. Matute, Natalie L. St игровы

Adjunct assistant professors: Otto Ojeda-Diez, Sara T.

Undergraduate degrees: B.A. in Spanish; Portuguese; minors in Spanish, Portuguese; graduate degrees: M.A., Ph.D. in Spanish and Portuguese

The department provides courses in undergraduate and graduate majors in Spanish or Portuguese, for the satisfaction of foreign language requirements for bachelor's and advanced degrees in other fields, and for the satisfaction of the second language requirement for undergraduate majors in comparative literature.

Knowledge of foreign language and culture is indispensable in many career areas. Students majoring in Spanish or Portuguese may find opportunities in fields such as business, transportation, industry, journalism, international broadcasting, publishing, teaching, research, library work, and translating.

Undergraduate Programs

Bachelor of Arts in Spanish

Elementary and intermediate courses in Spanish introduce five performance goals — listening, reading, speaking, writing, and cultural knowledge — in a staged progression that has an overall goal of developing proficiency. Emphasis is given to the acquisition of Spanish language skills through communicative contexts. Enrollment in a Spanish language course counts as one unit of credit in the field of language study. The remaining 3 semester hours of elective credit must be taken at the 300 level in either Department of Spanish and Portugese or the Department of Linguistics.

No more than 6 of the 34 semester hours required for the language and linguistics track may be taken in English.

Latin American Studies Track

The Latin American studies track is designed for students interested in pursuing interdisciplinary study of Spanish-American and Brazilian literature, history, and culture, and for those who want to prepare themselves for graduate work in the humanities or social sciences, for study at professional schools such as law, journalism, or business, or for a variety of business careers. It requires a minimum of 35 semester hours of credit in course work, as follows:

10.100 Accelerated Elementary Portuguese

5 h.s.

Additional Spanish or Portuguese language or linguistics

3 h.s.

Spanish-American or Brazilian culture

3 h.s.

Spanish-American literature

3 h.s.

Brazilian literature

3 h.s.

Latin American Studies Seminar or another approved undergraduate seminar

3 h.s.

Elective are approved courses in the Latin American Studies Program.

No more than 9 of the 35 semester hours required in the Latin American studies track may be taken in English.

Students completing the Latin American studies track of the undergraduate major in Spanish also may count their work toward completion of the Latin American Studies Certificate Program. Contact an academic advisor or the Chair of the Latin American Studies Program for more information.

Literature and Culture Track

The literature and culture track is designed for students interested in pursuing in-depth study of Spanish-American literature, history, and contemporary society, and for those

34.116 Technical Communication

Spanish

3 h.b.

118 Business Spanish

3 h.b.

120 Techniques of Spanish-English Translation

Linguistics

132 Spanish Phonology

3 h.b.

180 Syntax and Semantics of Spanish

3 h.b.

190 Introduction to Linguistics

3 h.b.

171 Spanish Syntax

3 h.b.

180 History of the Spanish Language

3 h.b.

Perntrutes

38.100 Advanced Elementary

3 h.b.

118 Foundations in Sociology

3 h.b.

189 Topics in Linguistics

3 h.b.

120 Portuguese for the Professions

3 h.b.

122 Topics in Portuguese Language

3 h.b.

The remaining 6 semester hours of elective course work must be taken at the 300 level in either Department of Spanish and Portugese or the Department of Linguistics.
who want to prepare themselves for graduate work in literature, study at professional schools such as law, journalism, or business, or for a variety of business careers. It requires a minimum of 34 semester hours of course work, as follows:

35:107 Advanced Spanish Language 4 s.h.
Additional Spanish or Portuguese language or linguistics 6 s.h.
Spanish and Spanish-American literature and culture 24 s.h.
Among the 24 semester hours taken in literature and culture, at least 3 semester hours must be taken in the Spanish area and at least 6 hours in the Spanish-American area.

No more than 3 of the 34 semester hours required in the literature and culture track may be taken in English.

Elementary and Secondary Teaching Certification in Spanish

Spanish majors interested in certification to teach in elementary and/or secondary schools must successfully complete the requirements listed above for any of the three undergraduate tracks in Spanish, as well as to be admitted to the College of Education's foreign language teacher education program. Several courses in the College of Education are also required, as is one semester of student teaching, taken in the senior year. Contact the College of Education for further information.

Students who plan to use a Spanish minor to teach at the elementary and/or secondary level must contact the College of Education concerning the requirements.

Honors in Spanish

Admission to the honors program in Spanish requires a minimum 3.50 total cumulative grade-point average and a minimum 3.50 average in Spanish. Conditional with honors in Spanish majors, in addition to the semester hours for the various major tracks described above, 3 semester hours must be taken in Spanish. As Honors, Research and Thesis, plus another 3-semester-hour course to be designated in consultation with the department honors advisor. Included are an honors report in Spanish and a meeting with a faculty committee, conducted in Spanish.

Transfer Credit for Spanish Majors

A maximum of 12 semester hours of credit in approved courses may be transferred from other institutions toward the requirements for the major in Spanish.

Minor in Spanish

A minor in Spanish requires 15 semester hours of course work in Spanish with a minimum grade point average of 2.00. Of this, 12 of which must be taken at Indiana University of Iowa. The College of Education's foreign language program offers Spanish courses numbered 100 and above. Students may not elect 35:101, 35:102, 35:115, or 35:117 for all requirements for the minor.

No more than 3 semester hours may be applied toward the minor from departmental courses taught in English.

Foreign Study Programs in Spanish

The department participates in several study-abroad programs. For summer programs include the State Board of Regents Hispanic Institute (Valdelina, Spain) and the Casa de Verano Summer Program in Mexico.

Included in its semester or year-long programs are the CIEE Language and Area Studies Programs (Arcos de la Sierra, Spain), the CIEE Language and Society Programs (Seville, Spain), the CIEE Liberal Arts Program (Seville, Spain), the CIEE Business and Society Programs (Seville, Spain), and the University of the Pan-American University, Seville, Spain. Participation is subject to the preferences of different programs and the availability of space.

A number of different programs allow the department to offer study-abroad opportunities that take into account a variety of student interests and needs. Credit earned in these or other study-abroad programs may be applied toward the requirements for the Spanish major or minor. The amount of credit that may be accepted varies according to the program.

Interested students should contact the department's study-abroad advisor. Credit earned in study-abroad programs other than the seven listed above may not be transferred, and is subject to the 12-semester-hour maximum allowed for the major.

Bachelor of Arts in Portuguese

Beginning courses in Portuguese are for students without prior foreign language study or experience. Classes are small, providing for a good deal of individual attention in an informal language learning environment. Courses emphasize speaking, understanding, and writing; in addition, students gain an awareness of the modern world and its people through the culture and music.

The B.A. in Portuguese requires the following courses or their equivalents, for a total of 36 semester hours of course work beyond the language core. Completion of the major under "Requiring Credit" below, may not be counted toward the 36 semester hours.

PREREQUISITES
35:102 Elementary Portuguese I 4 s.h.
35:100 Advanced Elementary Portuguese 4 s.h.
35:211 Intermediate Portuguese I 4 s.h.
35:212 Intermediate Portuguese II 4 s.h.
35:201 Advanced Intermediate Portuguese 4 s.h.

REQUISITED COURSES
35:316 Brazilian Literature I 3 s.h.
35:116 Brazilian Literature II 3 s.h.
35:117 Introduction to Portuguese Literature 3 s.h.
35:14 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
35:15 Topics in Portuguese Language (upper-division language) 3 s.h.
35:18 Topics in Portuguese Language (upper-division language) 3 s.h.
35:19 Cooperation and Conversation 3 s.h.
35:22 Topics in Latin-American Literature 3 s.h.
35:18 Foundations in Sociolinguistics 3 s.h.
35:1949 Topics in Portuguese 3 s.h.
35:112 Portuguese for the Professions (upper-division language) 3 s.h.

Electives: other courses in the above group or other interrelated offerings in Portuguese (literature, conversation, approved courses in related areas e.g., art, anthropology, comparative literature, geography, history, Latin American studies, linguistics, sociology) 6 s.h.

Minor in Portuguese

A minor in Portuguese requires 15 semester hours of course work in Portuguese with a minimum grade point average of 2.00, of which may be taken at The University of Iowa or a University of Iowa foreign study program in courses numbered 100 and above.

International Business Certificate

The College of Liberal Arts and Business Administration offers a joint program leading to a Certificate in International Business. The program consists of a study of international business and economics, international relations and international business languages, such as Spanish or Portuguese, and related area studies. It is designed not only to 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 environments in which international business operates.

The wide range of electives in the program provides both a broad background and specific areas of specialization to their interests and to complement majors in both liberal arts and business administration.

Contact the Office of Academic Programs in the College of Business Administration for more information.

Latin American Studies Certificate

The department plans an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the history, politics, social organization, economy, art, and literature of Latin America. Work in the program leads to a certificate or minor in Latin American Studies.

To receive the certificate, students must have sufficient competence in Spanish or Portuguese to do background readings in an language.
Examinations
The M.A. comprehensive examination is administered in both written and oral parts. The written portion consists of a two-hour examination in three areas, each of which is to be read aloud and for which the examination committee will be responsible. The student may choose to be examined in one language area and one literature area, one literature and two language areas, or three language areas. If more than two literature areas are represented, at least one must be in Spanish literature and at least one must be in Spanish-American literature. If a literature area is substituted for another in the requirements, the examining committee is comprised of four departmental faculty members.

Doctor of Philosophy in Spanish
Two doctoral programs are available. The first is devoted to Hispanic literatures. Before the comprehensive examination, candidates must complete the equivalent of three years of college-level study in another Romance language and become well-acquainted with its literature. Spanish, French, Italian, or Russian is acceptable. The comprehensive examination consists of the equivalent of one year of college-level study in another approved foreign language. This language must be Latin for those who will write the dissertation on a pre-1700 topic.

The second doctoral program provides for specialization in Spanish and Portuguese. Before taking the comprehensive examination candidates must complete the equivalent of one year of college Latin, the equivalent of three years of college Portuguese, and the equivalent of two years of college-level study of a third approved foreign language.

Program A: Literature Track
The following course work is required.
M.A. courses or equivalent transfer credits 36 s.h.
A course in literary theory, 200 level or above 3 s.h.
Two 200-level seminars 6 s.h.
39-392 Thesis 3 s.h.
Eight elective courses at the 200 level or above, at least 60 more than three 9 (s.h.) of which must be taken outside the department, bringing the total semester hour to the required minimum of 72 in the Ph.D. program.

Program B: Linguistics Track
The following course work is required.
M.A. courses or equivalent transfer credits 36 s.h.

Department of Linguistics
103:110 Approaches to Linguistics 3 s.h.
103:111 Syntax and Semantics 3 s.h.
103:112 Phonological Theory and Analysis 3 s.h.
103:121 Sociolinguistic Theory 3 s.h.
for the Ph.D. qualifying examination is composed of five departmental faculty members.

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 literature or in Spanish linguistics to enter the profession as a faculty scholar.

The Ph.D. comprehensive examination is administered in both written and oral parts. The written portion consists of a three-hour examination in each of four areas, designed specifically for each candidate; an oral examination follows, usually lasting two hours. The examining committee is composed of five departmental faculty members.

The four examination areas for each track are as follows:

Literature Track

A broad area in Spanish literary history; a reading list is determined by the student and the advisory committee.

A broad area in Spanish-American literary history; a reading list is determined by the student and the advisory committee.

Two specialized areas of the candidate’s choosing; these areas might involve further and more specialized explorations of particular periods, genres, or movements within Spanish, Spanish-American, and/or Latin-American literature and culture; history; or they might involve in-depth study of specific problems in Hispanic literary criticism or in literary theory. Areas involving Latin-American cinema also may be included. The candidate is given wide latitude in formulating the reading lists for these areas according to his or her research and teaching interests.

Linguistics Track

Contribution to Spanish syntax; a reading list is determined by the student and the advisory committee.

Contribution to Spanish phonology; a reading list is determined by the student and the advisory committee.

History of the Spanish language.

Two specialized areas of the candidate’s choosing; these areas might involve exploration of a specialized topic in one of the two core areas listed above; or it might involve study of a particular topic in an unexplored Romance philology; history of the Spanish language; Spanish dialectology; Portuguese linguistics; comparative Spanish-Portuguese linguistics; applied linguistics; language acquisition; bilingualism; sociolinguistics, or linguistic theory. Candidates are given wide latitude in formulating reading lists for these areas according to individual research and teaching interests.

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 continue to meet departmental standards, graduate students will continue to receive support over a reasonable period of time, but usually not for more than six years. Students who want financial support should apply directly to the department office.

Facilities

The Language Media Center provides facilities for language learning, teaching, and research. These include standard and obsolete manuals, tape recorders, record players, soundproof recording rooms, two doll rooms with 68 dual-channel tape recorders and a simultaneous master duplicate and student record, an electronic classroom, a soundproof workroom, 1800 and 80mm projection equipment and facilities, visual-aids screens and monitors, and a library of tape, video, and disc recordings. The department offers its majors a specific course in language laboratory pedagogy.

Courses

Spanish — Primarily for Undergraduates

All entering freshmen are required to take the Spanish Placement Test, which is offered at regular intervals on campus. Transfer students who have taken college Spanish at all other institutions will be required to complete Spanish 1 and 2, and to take the placement test, if necessary.

Effective fall 1992, students may not repeat courses in elementary Spanish for which high school transcript credit is presently. Students whose placement test scores do not indicate readiness for an intermediate or higher level Spanish course should register for Spanish 1.

Elementary Spanish Review, if they wish to continue study of Spanish beyond completion of the General Education Requirement in foreign language.

Students may, not, except with the department chair’s approval, take an elementary course for credit after having completed a higher-level course for which the elementary course is or equivalent is a prerequisite.

Under the provisions of the Foreign Language Immersion 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 their seniors or third- and fourth-semester courses if specific conditions are met. Contact the office of student development and enrichment or the registrar’s office for more information.

Cooperative Education Internship

The 30.1 Spanish Literature I course is conducted in Spanish. Course work in Spanish with a previous study of Spanish, French, or Italian.

The 30.2 Spanish Literature II course is conducted in English and written work is submitted in English. Course work is conducted in English.

30.3 Accelerated Elementary Spanish

The 30.3.1 sequence of three units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.5 Elementary Spanish Review

The 30.5.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.6 Intermediate Elementary Spanish

The 30.6.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.7 Intermediate Elementary Reading in Spanish

The 30.7.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.9 Spanish for Health Professionals

The 30.9.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.11 Advanced Low-Intermediate Spanish

The 30.11.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.12 Contemporary Latin American Novelist

The 30.12.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.13 Writers and Oral Expression in Spanish

The 30.13.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.15 Spanish Literature Honors

The 30.15.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.30 Special Work

The 30.30.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

Spanish — for Undergraduates and Graduates

30.35 Regional Hispanic Studies

The 30.35.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.36 Accelerated Elementary Spanish

The 30.36.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.40 Advanced Low-Intermediate Spanish

The 30.40.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.45 Contemporary Latin American Novelist

The 30.45.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.50 Writers and Oral Expression in Spanish

The 30.50.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.55 Spanish Literature Honors

The 30.55.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.60 Special Work

The 30.60.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.

30.65 Accelerated Elementary Spanish

The 30.65.1 sequence of two units, consists of an intensive course in basic grammar, vocabulary, and conversational skills.
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 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 assure 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 that field at The University of Iowa.

Before first 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 designed for the M.A. for which comparable courses taken at the undergraduate level will be required. Decisions about incorporating background course work in these areas are made by the faculty advisor in consultation with the student and the instructors of the basic science or clinical core courses.

The M.A. program with professional emphasis prepares clinicians in speech-language pathology or audiology whose practice is functionally independent of a variety of clinical settings. General core program M.A. programs with professional emphasis meet all academic and practical 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. The requirement 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 containing one or a combination of the following: literature review, proponent development, and presentation of data. A paper is required at the end of each student's enrollment. An exemption to this requirement can be made in the case of research hours leading to a thesis.

Candidates for an M.A. with professional emphasis are not required to complete a thesis, although all students demonstrating research aptitude and interest are encouraged to do so. All candidates preparing for the M.A. without thesis are required to take final written comprehensive examinations.

M.A. with Research Emphasis (General Program)

The general M.A. program for students intending to continue to the Ph.D. usually is a research emphasis of the courses in the professional M.A. program. Students in the professional M.A. program 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 course work. It typically takes two years to complete the required course work and thesis research.

M.A. with Professional Emphasis

A typical M.A. program with professional emphasis usually takes two years to complete but may take longer depending on the student's background and personal interests.

Core Requirements

All students entering M.A. with professional emphasis must take the following:

*100 Counseling Theories and Techniques 3 s.h.
*110 Basic Neuro Science for Speech and Hearing 3 s.h.
*125 Principles of Assessment 3 s.h.
*160 Auditory Communication 1 s.h.
*145 Speech-Language Pathology I: Phonological Disorders, Developmental Language Disorders, and Stuttering 3 s.h.
*146 Speech-Language Pathology II: Neurological Disorders, Voice Disorders, Medical and Related Disorders (speech-language pathology major only) 1 s.h.
*183 Hearing Loss and Auditory 4 s.h.

*244 Rehabilitative Audiology 4 s.h.
*300 Professional Practice of Audiology and Speech-Language Pathology 0 s.h.
*315 Seminar: Introduction to Research in Speech and Hearing 0 s.h.
*325 Methodologies in Assessing Speech and Hearing 4 s.h.
*326 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.
*327 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 s.h.
*328 Communication Problems of Developmental Disorders and Deafness 2 s.h.
*329 Voice Disorders 2 s.h.
*331 Language and Personality 2 s.h.
*351 Instrumentation for Voice Analysis 2 s.h.
*352 Communication Problems Associated with Head and Neck Surgery 1 s.h.
*332 Neurogenic Disorders of Language 2 s.h.
*333 Pharmacological Disorders of Speech 1 s.h.
*336 Phonology 1 s.h.
*333 Auditory and Related Disorders 2 s.h.
*3205 Designing Assistive Devices 1 s.h.
*332 Developmental Phonology and Disorders 2 s.h.
*328 Stuttering 2 s.h.
*333 Designing and Using Augmentative Communication 1 s.h.
*375 Foundations and Methods of Clinical Research 3 s.h.
*350 Seminar: Communication Problems 2 s.h.
*764 Remedial Methods to 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 allied agencies, and vocally; 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 clinical settings. A third track often preparation for speech-language pathologists in pediatrics, 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 voice 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, practical
experiences are structured to fill the needs of
students within each track.

School Track
Required (total of 9 semester hours):
3.206 Speech and Language Disorders of Young Children: Birth to Five Years:
2 s.h.
3.207 Speech and Language Disorders of Older Children: Five to Eighteen Years:
2 s.h.
3.282 Physiological Development and Disorders:
2 s.h.
3.283 Stuttering:
2 s.h.
7E104 Remedial Methods in Speech and Hearing:
2 s.h.
Recommended:
3.209 Communication Problems of Developmental Disabilities and
Disabilities:
2 s.h.
3.215 Developmental Apathy of
Speech:
2 s.h.
3.220 Designing Assistive Devices in
Communication:
1.5 s.h.
3.250 Prentiss Program in Augmentative
Communication:
1 s.h.

Hospital and Health Agencies Track
Required (total of 9 semester hours):
3.212 Voice Disorders:
2 s.h.
3.231 Communication Problems Associated with Head and Neck
Conditions:
1 s.h.
3.233 Neurogenic Disorders of
Language:
2 s.h.
3.234 Neurogenic Disorders of Speech:
2 s.h.
3.277 Cell Plans and Related Disorders:
2 s.h.
Recommended:
3.219 Communication Problems of Developmental Disabilities and
Disabilities:
2 s.h.
3.215 Developmental Apathy of Speech:
2 s.h.
3.254 Aphasia:
1 s.h.
3.260 Designing Assistive Devices in
Communication:
1 s.h.
3.282 Physiological Development and Hearing:
2 s.h.
3.283 Stuttering:
2 s.h.
3.250 Prentiss Program in Augmentative
Communication:
1 s.h.

Vocology Track
Required (total of 9 semester hours):
3.201 Principles of Voice Production:
3 s.h.
3.212 Voice Disorders:
2 s.h.
3.213 Voice Training and Rehabilitation:
2 s.h.
3.221 Instrumentation for Voice Analysis:
2 s.h.
Recommended:
3.203 Methods of Teaching Voice:
3 s.h.

Child development (e.g., human growth and
development, principles and theories of child
development, history and theories of early
toddlerhood education)

(Genesis education courses, e.g., introduction to
counseling, special education, and literacy areas;
not credited as meeting the professional education sequence.)

Completion of an approved human relations component

Completion of courses that cover the
evaluation of the disabled and the gifted
and talented (e.g., exceptional persons, education of
the gifted)

Doctor of Philosophy

The Ph.D. program provides advanced comprehensive training for the
clinically and academically oriented in communication sciences 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 spectrum and diverse backgrounds of its multidisciplinary faculty, whose members have 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/processing 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,
consultation, and research in related areas.

The department endorses candidates with special interests, goals, or backgrounds to
develop individualized programs of study. There are no required courses for the Ph.D.; rather,
a course 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
general psychology, engineering, mathematics, statistics, psychology, neurology,
neurobiology, and others, and special reading and research experiences.

The following courses are offered by the
department articulated for the Ph.D. students.
(Students interested in specific areas of research and selected student preferences of the faculty
must be enclosed with the degree program.)

1.120 Fundamentals of Laboratory
Instrumentation:
3 s.h.
1.201 Principles of Voice Production:
3 s.h.
1.216 Psychopathology:
3 s.h.
1.220 Advanced Laboratory
Instrumentation:
3 s.h.
1.224 Phonosurgical and Speech Hearing Sciences:
3 s.h.
1.240 Electrophysiological Techniques:
3 s.h.
1.250 Audiology and Biomechanics of Speech:
3 s.h.
1.252 Physiology of Speech Production:
3 s.h.
1.254 Psychoacoustics:
3 s.h.
1.255 Psychoacoustic Laboratory:
4 s.h.
1.256 Phonetics of Hearing:
4 s.h.
1.258 Digital Signal Processing:
2 s.h.
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3.076 Issues and Methods of Clinical Research 3 s.h.
3.011 Seminar: Speech and Language 2 s.h.
3.013 Preventive 0 s.h.
3.040 Seminar: Developmental Language Disorders 5 s.h.
3.021 Seminar: Student 2 s.h.
3.023 Seminar: Voice 2 s.h.
3.025 Seminar: Clap Plateau 2 s.h.
3.026 Seminar: Rehabilitation Audiology 2 s.h.
3.028 Seminar: Neuroanatomy Communication Disorders 2 s.h.
3.030 Seminar: Communication Disorders and Aging 2 s.h.
3.032 Seminar: Speech Science 2 s.h.
3.033 Seminar: Psychology 2 s.h.
3.035 Seminar: Psychobiology 2 s.h.
3.036 Seminar: Experimental Audiology 2 s.h.
3.037 Seminar: Clinical Audiology 2 s.h.
3.038 Seminar: Auditory Physiology 2 s.h.
3.507 Research 1 s.h.

Students in the Ph.D. program usually are expected to register for research credit during each semester of residence and to register for and participate in 3.013 Preventive. Knowledge in each of the areas of hearing, speech, language, phonetics, 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 graduate 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 must successfully complete and submit a dissertation based on original research.

Admission and Appointments

The Department of Speech Pathology and Audiology has requirements for admission to graduate appointments that supplement those specified by the Graduate College. A brief summary of departmental requirements is presented below. More detailed information is available from the department chair.

Application Form

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 graduate record examination scores relative to those presented by other applicants for the same term. While an undergraduate grade-point average above 3.0 does not ensure admission, the department awards few appointments with undergraduate grade-point averages below 3.0. Completed applications must be received no later than February 1 for admission in the next summer session or fall semester. Later applications will be considered only in special circumstances. Applications to begin study in the spring semester will be considered only under special circumstances and only if they are received no later than the preceding November 1.

Admission to the Ph.D. Program

Completed applications should be received at least two months prior to the beginning of the term for which application is made: approximately April 1 for summer session, July 1 for fall session, November 1 for spring semester. However, applicants who wish to be considered for graduate appointments must file the application deadlines for graduate appointment applications specified below. Applications are usually notified of action on their admission within six weeks after applications are complete.

Application for Graduate Appointments

The following information applies to all financial appointments administered by the department.

Graduate appointments usually begin in fall semester. Students beginning study in the spring semester of summer session are considered for appointments for the following fall semester.

Graduate appointments must be renewed by February 1 to ensure consideration for an appointment beginning the following fall semester.

Upon the notification of appointments, the University of Iowa Hospitals and Clinics and the College of Dentistry make additional information available to research on problems in speech and hearing. The participants and completion dates from various studies, including psycholinguistics, child development, education, epidemiology, and medicine, further broaden the scope of research activities in speech and hearing.

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 clinical facilities for the clinical training of students in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the Weldon Johnson Speech and Hearing Clinic; the division of speech and hearing in the Department of Communication—Head and Neck Surgery, speech and audiology service in the Department of Neurology, speech and hearing services in the University Hospital School; Pediatrics Regional Child Health Specialty Clinics; schools psychology service in child psychology; and the audiology and speech pathology service in the Veterinary—Allan Medical Center. Directors of these programs form the Council on Speech Pathology and Audiology at The University of Iowa.

The Weldon Johnson Speech and Hearing Clinic serves the University and the general public. Included in its services are occupational evaluation and rehabilitation programs for speech, hearing, and language problems, and a six week summer residential program for children. These clinical programs also serve students preparing for careers in speech and hearing. Clinical facilities have a wide variety of speech, hearing, and language disorders.

In addition to the clinical training in the Weldon Johnson Speech and Hearing Clinic, coursework may be required in selected clinical practice with elementary school children by arrangement with the various state and national education agencies; and in supervised clinical practice in speech and hearing service provided by the Departments of Otolaryngology—Head and Neck Surgery, Pediatrics, and Neurology, the Regional Child Health Specialty Clinics, University Hospital School, Veterans Affairs Medical Center, and St. Luke's Methodist Hospital in Cedar Rapids.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative educational training, research, and service programs.

Research Facilities

Facilities in the Weldon Johnson Speech and Hearing Center include audiological testing, suites, diagnostic and reformation suites, equipment for diagnosis and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, phonoaxis, and perceptual studies of speech, and for the assessment of perceptual and neuropsychological studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation of various departments of the University of Iowa Hospitals and Clinics and the College of Dentistry makes additional laboratory facilities available for research on problems in speech and hearing. The participants and completion dates from various studies, including psycholinguistics, child development, education, epidemiology, and medicine, further broaden the scope of research activities in speech and hearing.

Courses

3.098 Speech Pathology and Audiology Computer Algorithms for Signal Processing 3 s.h.
3.102 Service Area: Student 3 s.h.
3.103 Speech Pathology and Audiology 3 s.h.
3.104 Service Area: Speech 3 s.h.
3.105 Service Area: Speech and Audiology 3 s.h.
3.106 Service Area: Speech and Audiology 3 s.h.
3.107 Service Area: Speech and Audiology 3 s.h.
3.108 Service Area: Speech and Audiology 3 s.h.
3.109 Service Area: Speech and Audiology 3 s.h.
Theatrical work is required (total of 29 semester hours).
49.25 Acting I 3 s.h.
49.43 Elements of Design 3 s.h.
49.45 Theatrical Craft 3 s.h.
49.45 Production I 3 s.h.
49.46 Production II 3 s.h.
49.47 Production III 1 s.h.
49.48 Production IV 3 s.h.
49.56 Play Script Analysis 3 s.h.
49.112 History of Theatre and Drama 5 s.h.
49.113 History of Theatre and Drama 5 s.h.
49.114 Contemporary Theatre and Drama 3 s.h.
49.130 Directing I 3 s.h.
49.164 Dramaturgy 3 s.h.
or
An upper-level dramatic writing course

Courses 49.21 and 49.43 must be completed satisfactorily within the first year of study in the major. 49.44 Theatre Crafts is co-requisite to 49.45 Production I and is prerequisite to 49.46-49 Production II, III, and IV.

Students must enroll in no more than one production course in any one semester.

THEATRE ARTS LABORATORY
All theatre arts students, faculty, and staff meet regularly for guest presentations, discussion, and lecture. No credit class prescriptive. Attendance by theatre majors is mandatory.

AUDITIONS
All productions are open to anyone who wishes to audition. Each play is cast on the basis of what the director feels is best suited to the available talent; no preference is given to alumnus or current 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 bulletin board.

SPECIAL EMPHASIS PROGRAMS
Students who have special aptitude and readiness may wish to pursue one of the following emphasis programs. Note that admission to advanced courses in acting is by audition; achievement of a passing grade in the prior course is not a guarantee of admission to more advanced courses. To continue the emphasis, the student presents a final project to the faculty.

Acting Emphasis
49.20 Acting II 3 s.h.
49.125 Voice for the Actor 3 s.h.
49.121 Advanced for the Actor 3 s.h.

Two of these (total 6 s.h.):
49.121 Advanced Scene Study 3 s.h.
49.122 Acting with Voice 3 s.h.
49.123 Alternative Approaches to Acting 3 s.h.
Two of these (total 4-6 s.h.):
49.26 Basic Stage Combat 2 s.h.
49.126 Voice for the Actor II 3 s.h.
49.127 Movement for the Actor II 2 s.h.
49.156 Stage Makeup 2 s.h.

Directing Emphasis
49.150 Acting I 3 s.h.
49.125 Voice for the Actor 3 s.h.
49.127 Movement for the Actor 3 s.h.
49.130 Directing I 3 s.h.
49.131 Directing II 3 s.h.
49.133 Stage Management 3 s.h.
49.28 Basic Stage Combat 2 s.h.
49.172 Playwrights, Directors, Designers 3 s.h.
or
49.164 Dramaturgy 3 s.h.

Design Emphasis
49.40 Stagecraft Practicum 3 s.h.
49.41 Costume Practicum 3 s.h.
49.141 History of Fashion and Decor 3 s.h.
Two of these (total 6 s.h.):
49.134 Scene Design I 3 s.h.
49.135 Costume Design I 3 s.h.
49.136 Lighting Design I 3 s.h.
One of these:
49.137 Scene Design II 3 s.h.
49.138 Costume Design II 3 s.h.
49.139 Lighting Design II 3 s.h.
One of these:
49.144 Lighting I 3 s.h.
49.145 Drawing and Rendering for the Theatre 3 s.h.
49.146 Model Building 3 s.h.
49.149 Scene Painting 3 s.h.
Final project: An independent advanced design project in area of specialization.

Undergraduates in the emphasis may elect to graduate as an M.A. in 295 Studio in Theatrical Design.

Playwriting Emphasis
49.42 Basic Playwriting 3 s.h.
49.155 Advanced Playwriting 3 s.h.
49.120 Acting II 3 s.h.
49.130 Directing I 3 s.h.
Three of these (total 9 s.h.):
49.131 Directing II 3 s.h.
49.153 Adaptation 3 s.h.
49.154 Playwriting for Other Media 3 s.h.
49.155 Playwriting: The Dramaturgy 3 s.h.
49.157 Experimental Playwriting 3 s.h.
49.168 The One-Act Play 3 s.h.
49.150 Children’s Plays 3 s.h.
49.170 Political Plays 3 s.h.
or
49.164 Dramaturgy 3 s.h.

Final project: a full-length play or ten equivalent in diverse forms. One five-act scene must be staged for the faculty.

History/Literature/Dramaturgy Emphasis
49.22 Theatre and Society 3 s.h.
49.154 Shakespeare in Translation 3 s.h.
49.164 Dramaturgy 3 s.h.
49.180 Independent Study (practical dramaturgy project) 2 s.h.
One of these:
49.182 Shakespeare 3 s.h.
49.192 Shakespeare: Selected Plays 3 s.h.
49.186 English Renaissance Drama 3 s.h.
49.185 Restoration Drama 3 s.h.
One of these:
49.187 American Drama Since 1945 3 s.h.
49.188 American Women Playwrights 3 s.h.
19th and 20th Century 3 s.h.
49.189 Contemporary British Drama 3 s.h.
One of these:
35.112 Spanish-American Drama 3 s.h.
49.190 Black Action Theatre 3 s.h.
49.192 Afro-American Drama 3 s.h.
129.103 African Drama 3 s.h.

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 or seek admission to a special emphasis program.

Students transferring from another institution may present course work equivalent to 49.47 Literature for those electives; all transfer students are required to complete Production I, II, 49.21-49.46, 46, and 46.50 in the department.

HONORS

Honor students complete an honors project under the supervision of a faculty member. Projects may be analytical or creative in an appropriate combination of the two. All require an oral presentation or performance for the faculty.

Senior majors who qualify for the University Honors Program and have earned a 3.00 in the major and, 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 advisor, who advises them on finding an appropriate faculty project area; preparing and accepting an application; selecting a 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 49.52, with a minimum grade-point average of 2.00. At least 12 of these semester hours must be taken at The University of Iowa in advanced courses. Advanced courses required by the department include 49.20, 49.47, 49.49, 49.50, and 49.52, 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 the theatre artist. Graduates have a solid background in major performance theories, dramatic literature, and practices of the past and present as well as in the craft of their chosen specialties. Special attention is given to understanding the role and importance of live theatre in society. Instruction among the various theatre disciplines is emphasized, both in classes and through the department's extensive production program. Participation emphasis is placed on the development of new works for the theater. Students who demonstrate exceptional ability in acting, directing, playwriting, design, technical direction, or production stage management may apply for invitation 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 graduate record, recent records or proof of artistic accomplishment, and letters of recommendation also are considered.

Submissions of playtexts is the most important element in selection of students to enter the Playwrights Workshop.

Degree Requirements

Students normally must complete six semesters of residence (intersession may be substituted). The required number of graduate credits in the individual programs, a 3.00 grade point average, and a record of substantial creative work of high quality are prerequisites to the degree. The student must progress toward completion of the degree requirements in the manner prescribed by the college and of the degree to the 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 meet normal requirements are placed on academic probation and given our additional requirements for academic advancement to the degree. Students who fail to meet normal requirements are placed on academic probation and given our additional requirements for academic advancement to 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 includes both excellent classrooms and workshops as well as to-day facilities for classroom, laboratory, shop, and performance work. The E.F. Miehle 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 box" production space; its flexible seating units accommodate from 45 to 252 people and allow modification of space and audience distances. Theatre B, which seats 144, is an open stage theater designed primarily for the production of new and experimental works from the Iowa Playwrights Workshop. The flexible multi-theater seats 50.

All four theaters are equipped with state-of-the-art electronic lighting and sound reproduction systems. In addition to special classrooms for acting and directing, several spaces are designed for technical practice and study. The programs in design and costume studies are supplemented by the department's extensive costume and set design program. The maintenance rooms are for the study of movement and motion by working students. The Langdon stage is equipped with Lehman, laser disc, sound control and light control systems, and computer information retrieval systems. The Arco Collins Design Studio, named for a former professor of design and head of Iowa's theater program, serves as: classroom and studio workshop for technical and design students. The Computer-Aided Design Lab provides professional-quality, computer-aided design (CAD) computer programs for use by designers and technical directors. To support its production schedule and to provide students with an appropriate range of experience, the department maintains shops for building, painting, maintaining, and storing scenery, costumes, and properties. Using these shops, students learn to work in metal, plastics, canvas, and wood.

Productions

The Theatre Arts Department presents 50-60 public productions each year. These include a subscription series of five or six plays, a festival of six new works by students, and roughly twenty other productions, most of them new. 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, and visiting guest artists work together on large and small projects throughout the year, and to a substantial summer repertory season.

Courses

For Undergraduates

40:900 Cooperative Education Internship 3 s.h.
40:901 Art of the Theatre 3 s.h.
40:902 Theatre and Society 3 s.h.
40:903 Theatre and Society 3 s.h.
40:904 Technical Theatre 3 s.h.
40:905 Acting I 3 s.h.
40:906 Acting II 3 s.h.
40:907 Musical Theatre 3 s.h.
40:908 Stage Lighting 3 s.h.
40:909 Stage Management 3 s.h.
40:910 Stagecraft 3 s.h.
40:911 Stagecraft 3 s.h.
40:912 Stagecraft 3 s.h.
40:913 Stagecraft 3 s.h.
40:914 Stagecraft 3 s.h.
40:915 Direction for the Actor 3 s.h.
40:916 Directing for the Actor 3 s.h.
40:917 Directing for the Actor 3 s.h.
40:918 Directing for the Actor 3 s.h.
40:919 Directing for the Actor 3 s.h.
40:920 Directing for the Actor 3 s.h.
40:921 Directing for the Actor 3 s.h.
40:922 Directing for the Actor 3 s.h.
40:923 Directing for the Actor 3 s.h.
40:924 Directing for the Actor 3 s.h.
40:925 Directing for the Actor 3 s.h.
40:926 Directing for the Actor 3 s.h.
40:927 Directing for the Actor 3 s.h.
40:928 Directing for the Actor 3 s.h.
40:929 Directing for the Actor 3 s.h.
40:930 Directing for the Actor 3 s.h.
40:931 Directing for the Actor 3 s.h.
40:932 Directing for the Actor 3 s.h.
40:933 Directing for the Actor 3 s.h.
40:934 Directing for the Actor 3 s.h.
TRANSPORTATION STUDIES

Transportation is perhaps the most vital need of a modern society. In the United States, as in most other nations, there exists enormous traffic congestion and related problems. The highway system is reaching an advanced stage of its life cycle, public traffic operating costs are growing, the quality of transportation services is deteriorating, and new technologies are needed to preserve traditional transportation systems.

Transportation planners and analysts must draw on a number of diverse fields to develop the solutions that are required to address the transportation problems. This program is designed to prepare students in the areas of traffic engineering, urban planning, and transportation management. The program is designed to meet the needs of students who are interested in careers in the field of transportation planning and management.

Graduate Programs
Certificate
No single discipline supply all of the theories, principles, techniques, and methods needed to address the varied and complex problems in transportation. Recognizing this, the School of Urban Planning, the School of Environment and Planning, 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 additional professional skills with minimal loss of their current degrees.

The Transportation Certificate Program is coordinated by the Center for Transportation Studies and operated in cooperation with the MidAmerica Transportation Center, a consortium of The University of Iowa and Iowa State University. Completion of the required course work is to develop a student's transportation planning skills. The certificate is awarded in conjunction with the established degree requirements of the individual academic units.

Students who wish to enroll in a course of study leading to transportation planning may apply for subsidies as MidAmerica Transportation Institute graduate students. They are required to complete an approved program of study approved by the academic department and meet the requirements of the Transportation Institute. In addition, they must participate in a research seminar that requires a commitment to a project involving a public agency or a private sector firm operating in the region.

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. degree can be earned either without thesis, requiring a minimum of 30 semester hours of credit, or with thesis, a 36-month program that includes up to 6 semester hours of credit.

Northern students usually apply to complete a research paper based on research conducted at the University on their own campus, and the Ph.D. degree requires a minimum of 72 semester hours beyond the B.S. degree, with up to 36 semester hours of credit on campus. A minimum of one year of campus residence is required.

Individuals with degrees in transportation-related disciplines as well as civil engineering are encouraged to apply. Depending on the student's background, it may be necessary to complete courses in statistics, computer science, and operations research before being able to apply for the degree program. A Leipzig master's program includes the following courses.

FIRST SEMESTER

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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>53-262</td>
<td>Urban Transportation Planning</td>
<td>3.00</td>
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<td>53-250</td>
<td>Transportation Law and Policy</td>
<td>3.00</td>
</tr>
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<td>Transportation Economics</td>
<td>3.00</td>
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SECOND SEMESTER

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</tr>
<tr>
<td>52-243</td>
<td>Transportation Policy</td>
<td>3.00</td>
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</table>

Special Offerings

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</tr>
<tr>
<td>53-251</td>
<td>Transportation Law and Policy</td>
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</tr>
<tr>
<td>52-281</td>
<td>Transportation Economics</td>
<td>3.00</td>
</tr>
<tr>
<td>53-262</td>
<td>Urban Transportation Planning</td>
<td>3.00</td>
</tr>
</tbody>
</table>
Degree Programs in Geography

The Department of Geography offers Master of Arts and Doctor of Philosophy degrees with a specialization in geographic sciences. 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, urban and regional analysis. It also helps students develop an appreciation of political and organizational considerations relating to transportation options and of the exigencies of practical problem solving.

M.A. students typically take five courses in transportation and urban regional analyses, three quantitative methods courses, and four additional courses in geography or economics. The Ph.D. 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 received an Associate of Arts or Bachelor's degree may receive an additional one or two semesters to complete the program. A typical master's program includes the following courses.

**FIRST SEMESTER**
- **223:150 Probability and Statistics** 4 s.h.
- **102:250 Transportation Policy and Planning** 3 s.h.
- **102:261 Problems in Transportation and Land Use** 5 s.h.
- **102:269 Transportation Program Seminar** 1 s.h.
- **44:236 Travel Demand Modeling** 3 s.h.

**SECOND SEMESTER**
- **44:261 Introduction to Econometrics** 3 s.h.
- **102:261 Problems in Transportation and Land Use** 3 s.h.
- **44:350 Research Seminar: Staff** 1 s.h.
- **44:117 Economic Theory of Location** 3 s.h.

**THIRD SEMESTER**
- **44:263 Geographical Economics I** 3 s.h.
- **52:262 Urban Transportation Planning** 3 s.h.
- **44:175 Location Analysis** 3 s.h.
- **44:350 Research Seminar: Staff** 1 s.h.

**FOURTH SEMESTER**
- **44:236 Travel Demand Modeling** 3 s.h.
- **44:350 Research Seminar: Staff** 3 s.h.
- **44:285 Methods of Regional Analysis: Regional Science** 3 s.h.
- **44:293 Advanced Location Theory** 3 s.h.

**Fifth Semester**
- **44:236 Transportation Program Seminar** 1 s.h.

**Sixth Semester**
- **102:261 Problems in Transportation and Land Use** 3 s.h.
- **52:262 Urban Transportation Planning** 3 s.h.
- **44:263 Geographical Economics II** 3 s.h.
- **52:262 Urban Transportation Planning** 3 s.h.

**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 sector major in transportation. During the first year, students complete an integrated core curriculum consisting of courses in planning economics and policy analysis, allied methods, planning theory, collective decision making, law, and information presentation. The second year is devoted to a sector major, such as transportation, wherein core concepts are applied to a chosen area of specialization. The planning curriculum is intended to provide students with the capability to analyze policy issues in transportation, devise workable options, analyze these optimal courses of action, and work toward implementation of policy solutions.

Planning students complete a total of 48 semester hours and an internship. Twenty-seven semester hours are accounted for by the core courses, the sector major constitutes a minimum of 9 semester hours; and 12 semester hours are taken to complete the remaining hours. If the thesis option is selected, up to 6 semester hours of sector major credits are awarded. Students may elect to complete an additional 2 semester hours of course work to 10 hours of internship, bringing the total to 50 semester hours.

A typical transportation sector major program includes the following courses.

**FIRST AND SECOND SEMESTERS**

- Core courses (see "General and Regional Planning" in the section of the Catalog).
- Planning elective 3 s.h.
- 102:260 Transportation Policy and Planning 3 s.h.
- 102:269 Transportation Program Seminar 1 s.h.
- 44:263 Methods of Transportation Analysis 3 s.h.
- 52:262 Urban Transportation Planning 3 s.h.

**THIRD SEMESTER**

- 102:261 Problems in Transportation and Land Use 3 s.h.
- 44:263 Geographical Economics I 3 s.h.
- 52:262 Urban Transportation Planning 3 s.h.
- 44:175 Location Analysis 3 s.h.

**FOURTH SEMESTER**

- 44:236 Travel Demand Modeling 3 s.h.
- 44:350 Research Seminar: Staff 3 s.h.
- 44:285 Methods of Regional Analysis: Regional Science 3 s.h.
- 44:293 Advanced Location Theory 3 s.h.

**Fifth Semester**

- 44:236 Transportation Program Seminar 1 s.h.

**Sixth Semester**

- 102:261 Problems in Transportation and Land Use 3 s.h.

**UNIFIED PROGRAM**

Coordinated by Richard Schindel

**Departmental Language Requirements**

- English (2 courses)
- Mathematics (2 courses)
- Computer Science (1 course)

**Core Courses**

- 102:260 Transportation Policy and Planning 3 s.h.
- 102:269 Transportation Program Seminar 1 s.h.
- 44:134 Methods of Transportation Analysis 3 s.h.
- 44:177 Economic Theory of Location 1 s.h.
- 44:263 Geographical Economics I 3 s.h.
- 52:262 Urban Transportation Planning 3 s.h.
- 44:175 Location Analysis 3 s.h.
- 44:350 Research Seminar: Staff 1 s.h.
- 44:285 Methods of Regional Analysis: Regional Science 3 s.h.
- 44:293 Advanced Location Theory 3 s.h.
- 44:236 Travel Demand Modeling 3 s.h.
- 44:350 Research Seminar: Staff 3 s.h.
- 44:285 Methods of Regional Analysis: Regional Science 3 s.h.
- 44:293 Advanced Location Theory 3 s.h.
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**Thesis**

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- 52:262 Urban Transportation Planning 3 s.h.
- 44:263 Geographical Economics II 3 s.h.
- 52:262 Urban Transportation Planning 3 s.h.
- 44:175 Location Analysis 3 s.h.
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. Application should be submitted to the letter requesting admission to the program in the College of Engineering, The University of Iowa.

Students apply to the graduate planning program near the time when they are completing the B.S.E 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 academic major requirement by completing 12 semester hours of credit in courses offered by various departments and schools of the University, including for graduate planning program and the engineering college. Each combined degree student is assigned an advisor from engineering and one from planning. During the first year of the program, the advisor works closely with their engineering advisor and the student to the College of Engineering. For the fifth year, students confer with their graduate planning advisor.

Preventive Medicine and Environmental Health
Students may elect a 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 requires an M.A. in planning and a M.S. in preventive medicine and environmental health. It satisfies the educational requirements of the program typically found in planning and public health services, or as health or environmental planners.

A total of 60 to 63 semester hours of credit is required; the degree generally can be completed in two and one-half years. Separate admission to each academic unit is required.

Hospital and Health Administration
Students interested in health planning may want to switch 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, leading to 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 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 hospital management, state or regional agencies of health, and other private, nonprofit, or public health agencies.

Economics
Planning students who wish to strengthen their skills in economic analysis may enroll in the joint program with the Department of Economics. The combination of economics and applied policy analysis is valuable for students who want to obtain jobs such as state economic development planner, analyst, or public affairs regulatory consultant, 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 three years. Students earn an M.A. in planning and an M.A. in economics.

Social Work
For those interested in a career in social service delivery or human services planning, a joint program is offered in urban and regional planning and the School of Social Work, leading to an M.A. in planning and a M.S.W. in social work. Planning positions are available with city planning agencies, nonprofit social service agencies, and state human service departments.

A total of 60 semester hours is required for the two programs and at least 22 semester hours must be selected from the requirements of the two programs. It is possible to complete the program in three years, although some enrollment may require an additional semester. Separate admission to each academic unit is required.

Transportation
A transportation research and training program is offered through the Center for Transportation Studies, administered through the Urban and Regional Planning Program. A transportation certificate is awarded to students who satisfactorily complete a prescribed set of courses in transportation. These courses are taught in urban and regional planning, engineering, geography, and economics. The certificate program allows planning students with secular majors in transportation to extend their training and obtain an additional credential. For more information, see "Transportation Studies" in this section of the Catalog.

Financial Aid
Students in the Urban and Regional Planning Program receive financial support primarily in the form of teaching or research assistantships and grants or contract-funded research assistantships. Assistantships typically require ten hours of work per week under the direction of
Women's Studies | Liberal Arts

Cross-Classified Courses

31.1 Gender in the U.S.
Sex roles, gender relations, family and socialization, ethnicity, status, and gender roles of women in domestic, collective, and political arenas. Same as 30.1.

31.2 Women and Work in the U.S.
Women at work, including the history of women's work, gender and work, patriarchy, economic interests, and economic factors. Same as 30.2.

31.3 Women and Violence
Gender, violence, and women's rights, including legal and cultural perspectives, human rights, and social policies. Same as 30.3.

31.4 Gender, Race, and Ethnicity

31.5 Gender Relations and Communication
Analysis of similarity and differences in communication between genders. Same as 30.5.

31.6 Psychological Research on Women
Current research and methodology, cognitive processes, psychological development, and current issues. Same as 30.6.

31.7 Women and Work

31.8 Women and Violence
Women in the criminal justice system, including legal and cultural perspectives, human rights, and social policies. Same as 30.8.

31.9 Women and Religion
Religion and women, including religious institutions, religious traditions, and women's roles in society. Same as 30.9.

31.10 Women and Politics
Politics and gender roles, including political participation, political representation, and political power. Same as 30.10.

31.11 Women and Media
Women's media images, anti-sexism and gender, and the media. Same as 30.11.

31.12 Women and Violence
Women and violence, including legal and cultural perspectives, human rights, and social policies. Same as 30.12.

31.13 Women's History: The Coming of the Women
Women's history in the U.S., women's history in Europe, and women's history in other parts of the world. Same as 30.13.

31.14 Black Women Writers
Black women writers in the U.S., women writers in the U.S., and women writers in other parts of the world. Same as 30.14.

31.15 The Black Woman in America
Cultural expressions, cultural traditions, and social roles of Black women, especially in the United States, Africa, and other parts of the world. Same as 30.15.

31.16 Women and Social Change
Women's experiences in America, women's experiences in other parts of the world, and women's roles as activists. Same as 30.16.
131:383 Feminist Theory: Historians' Perspectives
Same as H133.
131:384 Seminar: History of American Women
Same as H134.
131:395 Women and Politics
Same as Pol116.
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Dean: George Daly
Senior associate dean, academic affairs: Gary C. Joch
Associate dean, undergraduate programs: Donna E. Thayer
Associate dean, graduate programs: Wilma R. Cree, Jr.
Assistant dean, operations: Mieron P. Maccione, Jr.
Acting assistant dean, management and business development: Nancy C. Voel
Degree: B.B.A., M.B.A., M.A., Ph.D.
The College of Business Administration contains 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 center and institutes of the college: Executive Development Center, Financial Markets Institute, Industrial Relations Institute, Institute for Economic Research, Management Center, Manufacturing Productivity Center, Institute for Entrepreneurial Management, Ira B. McClure 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 or at the University of Iowa or at another institution and usually enter the College of Business Administration at junior status.

The college's B.B.A. curriculum requires 120 semester hours for graduation, with at least 48 semester hours in business courses and at least 24 in the major field of specialization. Limitations are imposed on the student's minor studies.

The last 30 or 45 of the last 60 semester hours must be earned in residence following admittance to the College of Business Administration. At least 24 semester hours of credits 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 other institutions. 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 at least a 2.0 grade-point average in college course work overall, in all business course work, and in all course work in the major, both at The University of Iowa and at other institutions.

Common Requirements

B.B.A. candidates must satisfy the following minimum common requirements or approved equivalents:

1. Economics 101 and 102 or 103 4.0 s.h.
2 22M:17 and 22M:58 Quantitative Methods I and II or 22M:25, 22M:56, and 22S:120 4.0 s.h.

46:1 Principles of Microeconomics 3.0 s.h.
46:2 Principles of Macroeconomics 3.0 s.h.
46:4 Introduction to Financial Accounting 3.0 s.h.
46:5 Managerial Cost Accounting 3.0 s.h.
46:6 Financial Information Systems 3.0 s.h.
46:7 Financial Accounting 3.0 s.h.
46:8 Managerial Accounting 3.0 s.h.
46:9 Introduction to Law 3.0 s.h.
46:100 Administrative Management 3.0 s.h.
66:100 Introductory Financial Management 3.0 s.h.
66:100 Introductory Marketing 3.0 s.h.
68:165 Business Policy 3.0 s.h.

In addition, students must complete a major area of study. The majors offered by the college are business administration, accounting, economics, finance, industrial relations and human resources, management sciences, and marketing. With the exception of the major in business administration, the requirements for each are established by the departments of the college.

Students with Associate of Arts Degrees

Students who receive Associate of Arts (A.A.) degrees from Iowa Area Community Colleges participating in the Iowa Community Colleges-Bachelor's Agreement are considered to have completed the general education and specific core courses required for the B.B.A. degree. This agreement is intended to provide a smooth transition for students who wish to pursue a B.B.A. degree after completing an A.A. degree.

To be eligible for the B.B.A. degree, candidates must have completed at least 46 semester hours of credit in the general education requirements and the specific core courses required for the B.B.A. degree.

Transfer Students

Transfer students must have completed a full year of college course work that is equivalent to the general education requirements and the specific core courses required for the B.B.A. degree.

Business Administration Majors

Business Administration majors may combine studies in one of the six departments with studies in any other major. No combination of studies may exceed the 120 semester hours required for graduation.

Minor in Business Administration

The minor in business administration provides an excellent background for students who do not wish to major in business administration but who desire a broad background in business and economics. The minor requires 18 semester hours of course work in the business departments of the college.

Minor in Marketing

The minor in marketing is designed for students who wish to pursue a career in marketing. The minor requires 24 semester hours of course work in the business departments of the college.

Minor in Finance

The minor in finance is designed for students who wish to pursue a career in finance. The minor requires 24 semester hours of course work in the business departments of the college.

Minor in Accounting

The minor in accounting is designed for students who wish to pursue a career in accounting. The minor requires 24 semester hours of course work in the business departments of the college.

Minor in Management

The minor in management is designed for students who wish to pursue a career in management. The minor requires 24 semester hours of course work in the business departments of the college.

Minor in Economics

The minor in economics is designed for students who wish to pursue a career in economics. The minor requires 24 semester hours of course work in the business departments of the college.

Minor in International Business

The minor in international business is designed for students who wish to pursue a career in international business. The minor requires 24 semester hours of course work in the business departments of the college.

Minor in Management Information Systems

The minor in management information systems is designed for students who wish to pursue a career in management information systems. The minor requires 24 semester hours of course work in the business departments of the college.
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 in the course of study.

To be eligible for either form of recognition, a student must complete 60 semester hours in residence as an undergraduate at The University of Iowa, 45 of which must be completed prior to the final registration.

Graduation with Distinction
The Office of the Registrar certifies to the dean of the college the names of students eligible to graduate with distinction. The college awards degrees "with highest distinction" to students in the highest two percent of the graduating class, "with high distinction" to students in the next highest three percent, and "with distinction" to the next highest five percent. Ranking is based on students' grade-point averages for all college-level study undertaken prior to their final registration.

Admission
Admission standards are set by the undergraduate programs committees. 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 a grade-point average of at least 2.50 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 2.50 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 2.50 for one or more of the categories and above 2.25 for each of the categories are precluded from consideration. The college considers the following factors in a comparative evaluation of applicants for admission:

- grade-point average for each of the categories listed above;
- the pattern of grades over time; and
- other factors relevant to predicting success in the college.

The college provides information about characteristics of recently admitted students, thus enabling those interested in the program to judge how they are progressing toward admission.

Credit and Grading
Credit by Examination
Students may earn up to 32 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) and the Advanced Placement Program (APR) of the Examination Board are used. It is possible to receive credit for some of the courses required of the major.

Information on the CLEP and AP examinations is available from the University's Evaluation and Examinations Service.

Maximum Schedule
Course schedules of more than 16 semester hours for a semester or 9 semester hours for a summer session require approval of the dean.

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 advisor and instructor. Courses may be dropped during the first two weeks of the semester or first five weeks of the summer session with approval of the advisor and instructor. Students must have the approval of the dean to drop a course after these deadlines. Approval for adds or drops after these deadlines is granted only in extraordinary circumstances.

Undergraduates will receive the mark of W for any course dropped after the third week of the semester or one and one-half weeks of the summer session.

Pass/NoPass
Of the total semester hours required for a B.A., up to 32 semester hours of pass/no-pass basis with the consent of the advisor and instructor. However, students may not take more than 8 semester hours of pass/no-pass credit in the last 60 semester hours of course work. Students must be in good academic standing to be eligible for the pass/no-pass option. A maximum of two pass/no-pass courses may be taken in one semester.

Courses taken pass/no-pass may not be used to satisfy general education, concentration, or major business requirements. In addition, all core business requirements must be taken for a regular grade. Credit earned in pass/no-pass must be approved by the college during the first three weeks of a semester or the first one and one-half weeks of a summer session. For courses passed on a pass/no-pass basis, an average grade of C- or above is recorded as a B on the student's transcript. A grade of D or below is recorded as an N.

Second-Grade-Only Option
This option is not available to students who were admitted to the college for spring semester 1990 or thereafter.

Students admitted to the college prior to spring semester 1990 may elect to repeat a course with only the second grade being computed in
the grade-point average, except in cases of regression. Regression occurs when a student takes a lower-level course after having completed a more advanced course to which the lower-level course was a prerequisite. Regression voids the possibility of the second-grade-only option.

For students admitted to the University prior to summer session 1967 and to the college before spring semester 1990, this option may be applied to a maximum of 16 semester hours of course work.

For students admitted to the University for summer session 1967 and to the college before spring semester 1990, this option is limited to a maximum of three courses.

The second-grade-only option is applicable only to courses taken both times at The University of Iowa for a consistent letter grade. It may be used only once per course.

Students who want to use the second-grade-only option rule should register in the usual manner for the course they desire to repeat, or add it during the regular period for adding courses (the first three weeks of the semester). They must declare their intent to use the option by reporting to the College of Business Administration, Academic Programs Office. This must be done by the end of the third week of the semester (or first one and one-half weeks of the summer sessions). Liberal arts prerequisites majors must adhere to second-grade-only option procedures and deadlines set for the College of Liberal Arts Office of Academic Programs. Under the provisions of this option, the registrar maintains that a grade of 2.00 or better in a particular course has been repeated. Both grades remain or the permanent record, but only the second one is used in calculating the grade-point average for award of honors.

The required procedure of counting both grades in business where students repeat a course is different than students follow the above procedure.

Correspondence Courses Work

B.B.A. candidates may not satisfy any requirement—general education, common, or major—through correspondence courses.

Probation and Dismissal

Students are placed on academic probation when their grade-point average is in any of the following categories: 2.00 or below; 2.00-2.09, all course work undertaken, all course work undertaken at The University of Iowa, 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 status. Usually, students are allowed only one semester to return to good academic standing. Students on academic probation who withdraw may not register for the fall semester and drop courses are automatically dismissed. Students may be dismissed from the college at any time for unsatisfactory scholarship. While some probationary period usually provides a chance, 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 reenroll, but usually only after the expiration of one calendar year following the end of the term in which the threatened dismissal took place.

International Business Certificate

The College of Business Administration and the College of Liberal Arts offer a program leading to a Certificate in Business. This program entails study of international business and economics, international relations and institutions, a foreign language, and related area studies.

It has been designed not only for undergraduate students who intend to pursue careers in international business but for undergraduates interested in gaining a partial understanding of the global economy and a broader awareness of the political, social, and economic environment in which international business operates. The range of electives in the program permits students to tailor areas of specialization suited to their individual interests and to complement majors in both liberal arts and business administration.

Completion of requirements results in the issuance of an "International Business Certificate" on the student's transcript. Questions should be directed to the College of Business Administration, Academic Programs Office.

Application Information

Interested students must declare their intention to pursue the certificate and file a plan of study at the Academic Programs Office. In order to receive the Certificate in International Business, students must receive an undergraduate degree from The University of Iowa, maintain a 2.00 minimum grade-point average on all course work taken for the certificate, and take at least 25 semester hours of course work (other than language) for the certificate at The University of Iowa or in approved study-abroad programs. A course may not be used to satisfy more than one certificate requirement.

Requirements

A complete listing of courses satisfying the following requirements is available from the Academic Programs Office.

International Business

68:1 Principles of Microeconomics

68:2 Principles of Macroeconomics

Three courses in International business

International Relations and Institutions

Two courses in international relations and institutions

Foreign Language

Two to three years of college-level work (or equivalent) in one of the following languages: Chinese, French, German, Hindi, Italian, Japanese, Portuguese, Russian, or Spanish

Area Studies

Two courses that pertain to countries or areas in which the chosen language is spoken.
Interested students should have completed 60 semester hours of study, earned a 3.50 minimum grade-point average, and indicated the intent to pursue both degrees programs on a full-time basis. More information on the AP program is available from the Academic Programs Office.

CORE COURSES

First Semester
6N-210 Models for Decision Support 3 s.h.
6N-211 Marketing Management 3 s.h.
6N-212 Administrative Science I 3 s.h.
6N-213 Management Economics 3 s.h.
6N-215 Accounting for Managers I 3 s.h.
Total 15 s.h.

Second Semester
6N-221 Managerial Finance 3 s.h.
6N-250 Statistical Methods 3 s.h.
6N-277 Administrative Science II 3 s.h.
6N-288 The Economic Environment of the Firm 3 s.h.
6N-290 Operations Management 3 s.h.
Total 15 s.h.

Third Semester
6N-230 Applied Strategic Analysis 2 s.h.
6N-235 Accounting for Managers II 1 s.h.
Electives 6 s.h.
Concentrations 0 s.h.
Total 15 s.h.

Fourth Semester
6N-240 Strategic Management and \nExecutive Policy 3 s.h.
Electives 6 s.h.
Concentrations 0 s.h.
Total 15 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. Most areas of concentration include accounting, corporate finance, investments, human resources management, leadership quality and status, management information systems, production and operations, and marketing. Individual students may devise their own concentration areas, subject to approval by the Graduate Programs Office.

ELECTIVES

The student chooses 12 semester hours of graduate-level electives. Courses outside the College of Business Administration must be approved by the College Programs Office.

DROP POLICY

The M.B.A. program has an early drop policy for students to drop any 6th department course. The last day to drop is the University's last day to add courses. This policy is in effect at the end of the third week of fall or spring semester and at the end of the first week and half of the summer session. Drops after this date will be allowed only upon successful petition to the Graduate Programs Office.

OFF-Campus M.B.A.

Courses are offered during evening hours in Cedar Rapids and the Quad Cities. This program is sponsored jointly by the College of Business Administration and the Division of Continuing Education in Cedar Rapids. These courses are offered in conjunction with the Continuing Education Association, and with the Quad Cities with the Quad Cities Graduate Study Center in Rock Island, Illinois.

Students pursuing the degree in the evening usually take two courses each semester and are able to complete the program in four years. A limited number of M.B.A. courses are offered in Iowa City during the evening. All students admitted to the M.B.A. program may take courses on a part-time basis during the day.

Executive M.B.A. Program

The Executive M.B.A. also leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Course work is presented in two academic years. Classes begin with one full week in Iowa City followed by classes each day one week alternating Fridays and Saturdays. Participants progress through the program together as a single group. Enrollment is limited to 35 students per year.

Information about the program, fees, and application procedures may be obtained by writing or calling the College of Business Administration Academic Programs Office.

Master of Arts

The Master of Arts in business administration is designed for students seeking specialization in one of three areas of business administration. It permits a research emphasis that equips students for professional positions in business.

The program is available with or without the thesis and is flexible, permitting specialization according to students' interests and objectives. Students may select a major in accounting, industrial relations and human resources, or management information systems. A minor may be developed from approved course combinations within the College of Business Administration or from the available college. Specific program requirements are stated in the individual department listings in this section of the Catalog.

Doctor of Philosophy

The Ph.D. program in business administration is designed for students preparing for research careers 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. Supportive coursework and related experience may be provided so that students achieve competence in economic theory, statistical methods, teaching, and/or research, as well as expertise in a major and minor area of study.

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 ACGS-accredited programs) take 60 semester hours of course work. Additional course requirements may be imposed to guarantee satisfaction of doctoral prerequisites or the Graduate College minimum total credit-hour requirement (72 semester hours of graduate credit, including courses taken before entering The University of Iowa Ph.D. programs).

PREGRADUATE COURSES

The common body of knowledge requirements of all MAJOR must be satisfied. These include courses in accounting, finance, management, marketing, organizational behavior, quantitative methods, and the economic and legal environment pertaining to profit and/or nonprofit organizations.

CORE COURSES

Core courses are designed to develop competence in research and to provide necessary background for study in more specialized courses. Graduate courses are required as follows: behavioral sciences (3 semester hours), economics (3 semester hours), issues in scientific inquiry (3 semester hours), and research methods/statistics/quantitative analysis (12 semester hours).

To reflect the background and interests of individual students, doctoral candidates consult with their advisors to establish satisfaction of core requirements.

MAJOR AREA OF STUDY

A minimum of 12 semester hours of approved dissertation courses beyond the Ph.D. core courses must be taken. Available areas include all major areas of study listed in addition to concentrations outside the College of Business Administration. Graduate students in the master's programs are requested to choose their doctorate concentration in one of the follow areas: accounting, finance, human resource management, industrial relations, management, or organizational behavior.

MINOR AREA OF STUDY

A minimum of 9 semester hours of doctoral-level courses beyond the Ph.D. core courses must be taken. Available areas include all major areas of study listed in addition to concentrations outside the College of Business Administration. Graduate students in the master's programs are requested to choose their doctorate concentration in one of the follow areas: accounting, finance, human resource management, industrial relations, management, or organizational behavior.

COMPREHENSIVE EXAMINATIONS

Students must successfully complete a written examination in both the major and minor areas of study. The examination committee is made up of a maximum of three faculty members. Upon satisfactory completion of the written comprehensive examinations, students must pass an oral comprehensive examination encompassing subject matter in the major, minor, and minor areas. The examination committee is made up of at least five faculty members.

DISSERTATION

A dissertation proposal must be presented before a board of dissertation committee members and open to interested faculty and graduate students as established by
separational procedures. Students are required to complete 15 semester hours of dissertation credit. The compatriot of research and writing, associated with the dissertation usually requires one year of full-time effort.

FINAL EXAMINATION
The complete dissertation must be defended in an oral examination attended by the dissertation committee members. It is open to other interested faculty and graduate students.

Admissions
Applicants seeking admission to graduate study in business must submit the Graduate College application form and fee, the program director’s letters of recommendation, and the Graduate College Admissions Office. The requirements are as follows.

Graduate Record Examinations (GRE) Aptitude Tests may be submitted in place of the GMAT. Scores in applications for the Ph.D. program in business administration. See the Graduate School section of the catalog for more information.

Application Information
A completed application that follows the guidelines for the Department of Business Administration, includes the following.

1. A completed application form and a signed statement from the Office of Admissions
2. Official copies of undergraduate and graduate transcripts submitted to the Office of Admissions
3. Official Graduate Management Admission Test (GMAT) scores submitted to the Office of Admissions
4. The completed supplementary application form with essay responses and a resume (for MBA applicants)
5. At least three references from former instructors or employers submitted to the Graduate Program Office.

Foreign nationals (whose written English is not the primary language) must submit an official score of 600 or more on the Test of English as a Foreign Language (TOEFL). A graduate application packet may be obtained from the Office of Admissions.

Application Deadlines
The application deadlines for M.B.A., M.A., and Ph.D. programs in business administration are as follows.

M.B.A. Program (Fall and Spring Entrance Only)
March 1—Foreign applicants for fall (August) or spring (January), January for the accepted GMAT test date.
July 1—U.S. citizens and permanent residents applying for fall (August) or spring (January), January for the accepted GMAT test date. Applications received by April 1 receive priority for financial aid scholarships.

November 15—U.S. citizens and permanent residents applying for spring (January) or fall (August) entrance. October 1 is the usual GMAT test date. Applications received by October receive priority for financial aid scholarships.

M.A. in Accounting, Industrial Relations and Human Resources, and Management Information Systems (Summer, Fall, and Spring Entrance)
February 1—Foreign applicants for summer or fall who are applying for financial assistance from The University of Iowa.
M.A. in Accounting, Industrial Relations and Human Resources, and Management Information Systems (Summer, Fall, and Spring Entrance)
February 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 spring (January) or fall (August) entrance.
July 15—U.S. citizens and permanent residents applying for spring (January) or fall (August) entrance.
October 1—Foreign applicants for spring (January) or fall (August) entrance.
December 1—U.S. citizens and permanent residents applying for spring (January) or fall (August) entrance.

M.A. in Business Administration (Summer, Fall, and Spring Entrance)
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 spring (January) or fall (August) entrance. Applications received by February receive priority for financial assistance.
October 1—Foreign applicants for spring (January) or fall (August) entrance.
December 1—U.S. citizens and permanent residents applying for spring (January) or fall (August) entrance.

Joint Programs
Joint programs allow students to pursue concurrently in M.A., M.B.A., or Ph.D. 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, or an M.A. in nursing in the College of Nursing, or an M.A. in business and industry administration in the College of Medicine. These programs allow students to earn both degrees—a maximum of 72 semester hours more easily than if each degree were pursued independently.

Other Graduate Programs
M.A. in Accounting
See “Accounting” in this section of the Catalog.

M.A. and Ph.D. in Economics
See “Economics” in this section of the Catalog.

M.A. in Industrial Relations and Human Resources
See “Management and Organizations” in this section of the Catalog.

M.A. in Management Information Systems
See “Management Information Systems” in this section of the Catalog.

Facilities
The Management Information Systems building, currently under construction, is scheduled for completion in spring 1993.

A new College of Business Administration building, currently under construction, is scheduled for completion in spring 1993.

The facilities in the Following are available to all students. Students also have direct access to the computer laboratories in the Management Information Systems building, currently under construction, is scheduled for completion in spring 1993.

Executive Development Center
The Executive Development Center conducts training and development conferences for key executive and senior-level management personnel in business, 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 areas of business as well as the economic, social, and international issues that affect American business and industry. In addition to these public programs, specially tailored executive programs are offered for particular industries and/ or businesses.

Financial Markets Institute
The Financial Markets Institute has two primary objectives: to disseminate recent advances in knowledge about the operation of financial markets in the academic and financial community, and to support basic research that investigates the risks and returns of financial markets.
Business Administration

Industrial Relations Institute

The Industrial Relations Institute is designed to instruct 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 economic advisors to industry and government. The Institute's major objectives are to provide economic information, service, and advice on a confidential basis to business and public agencies; to provide a resource point for applied economic research; and to promote and enhance academic research and teaching in economics.

Institute for Entrepreneurial Management

The Institute for Entrepreneurial Management helps and guides potential and present entrepreneurs in planning, evaluating, and starting new business ventures. It offers individual counseling and the participation of graduate students guided by faculty members in projects such as assembling the size and viability of a market, producing pro forma financial statements, and writing the business plan. The Institute also offers nonprofit classes on how to manage the entrepreneurial process.

Management Center

The Management Center is a major continuing education branch of the college that provides relevant information to management and government representatives in Iowa. It disseminates current administrative, behavioral science, and management knowledge related to the working life of people in organizations through on- and off-campus conferences.

Manufacturing Productivity Center

The Manufacturing Productivity Center facilitates commercial arrangements with Iowa manufacturing firms. The apparatus enables business faculty and graduate students, working with the firm's managers and engineers, to jointly address ways to improve manufacturing productivity.

Ira B. McCladrey Institute for Accounting Research

The Ira B. McCladrey Institute for Accounting Research facilitates efforts of the college's accounting faculty by providing staff and financial support.

Small Business Development Center

The Small Business Development Center was created in 1981 to provide management assistance without change to small business owners and persons interested in starting a small business. The center provides individual counseling to small businesses and conducts workshops on topics related to small business management.

Placement Services

The placement needs of the college are served by the Office of Business and Liberal Arts Placement, located in Phillips Hall. A placement media library, student career planning advising, and interview facilities provide students and recruiting organizations with a full range of placement services.

Alumni Relations

The college maintains an Office of Alumni Relations to act as host during visits from alumni, friends, recruiters, and others interested in the college.

Interdepartmental Courses

For Undergraduates

- 6000 Cooperative Education Internship 0.a.h.
- 0020 Cooperative Education Internship 0.a.h.
- 6040 Business Policy 3.a.h.
- 6010 Business Policy 3.a.h.

For M.B.A. Students

- 6045 Cooperative Education Internship 0.a.h.
- 6040 Cooperative Education Internship 0.a.h.

Professional Program

The professional program in accounting at the University of Iowa is a three-year undergraduate and graduate program that leads to a Master of Arts (M.A.) degree. The program draws on curricula that go beyond a strong base of technical subject matter, to provide students with a comprehensive perspective on decision making, which can be used to solve complex business problems. This framework of skills enables students to identify and analyze the growth within the entire range of their careers. The professional program is designed to provide the academic background required for leadership positions in industry.
business, government, and public accounting. It also qualifies students in the Certified Public Accountant (CPA) and Certified Management Accountants (CMAs) examinations.

Completion of prerequisites course work and acceptance in the College of Business Administration are required before entry into the professional program in accounting. Separate application to the College of Business Administration and the professional program in accounting are made at the end of the sophomore year. If an applicant is accepted into the program at the beginning of the fall or spring term, the student receives a B.B.A. after the successful completion of the first two years of the program. The sophomore year 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," below.

The first and second years of the professional program, taken during the junior and senior years, provide concentrated coverage of professional accounting subjects and closely related topics in economics, economic law, behavioral science, and operations research.

The third year, taken during M.A. candidacy, emphasizes the theoretical and conceptual 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. Students are exposed to contemporary accounting practices through the Accounting Issues Seminar course and the M.A. Speaker Series. Graduate accounting courses are selected to demonstrate the nature of accounting cooperation between students and outstanding professional accountants. Oral and written communication skills are emphasized during the third year through class presentations and papers.

Students in the first and second years of the professional program must maintain a 2.00 grade-point average in all graduate courses and a 3.00 grade-point average in the upper-division accounting courses. Students in the third year of the professional program must maintain a 3.00 grade-point average in all B.B.A. courses taken during that year. Students who do not maintain these grade requirements are placed on academic probation and allowed to continue for one semester. If the minimum grade requirement is not met at 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 remain in the professional program in accounting.

Students who have earned a B.B.A. in accounting at the University of Iowa but have acquired a B.S. degree's major in another degree department, college, or university must apply to the University of Iowa Graduate College. Candidates applying for entrance to the Graduate College with the objective of an M.A. in accounting must include scores obtained on the Graduate Management Admission Test (GMAT). Admissions are considered throughout the academic year.

Students accepted into the master's program in accounting enter the third year of Program 1 (B.B.A. in business) or from another university. Program 2 (B.B.A. in business but not in accounting, or Program 3 (B.A. not in business). All programs are adjusted to reflect the particular academic background or deficiencies of the successful applicant.

Program 1
This program is for students who have completed four pre-professional programs at the University of Iowa or qualified students from other institutions.

Usual graduate students entering the professional program must complete 60 semester hours of course work, including the following general education core courses, prior to admission to the professional program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>6A-1</td>
<td>Introduction to Financial Accounting (with a grade of B- or higher)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6A-2</td>
<td>Managerial Cost Accounting (with a grade of B- or higher)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6D-1</td>
<td>Principles of Microeconomics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E-2</td>
<td>Principles of Macroeconomics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>2204</td>
<td>17 Quantitative Methods I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2258</td>
<td>Quantitative Methods II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>6E-70</td>
<td>Computer Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K-71</td>
<td>Statistical Analysis</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

After successful completion of the first two years of the professional program, students receive the B.B.A. During the first two years in the program, undergraduate accounting students are expected to complete the Graduate Management Admission Test (GMAT). If they have been highly successful during the first two years of the program and have completed the GMAT, they are admitted to graduate study and the third year of the program. After successfully completing the third year of the professional program (including an oral exam), students receive the M.A. in accounting.

FIRST YEAR (JUNIOR)
Full Semester
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>6A-131</td>
<td>Financial Accounting I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6D-100</td>
<td>Introductory Financial</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6H-100</td>
<td>Administrative Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6I-100</td>
<td>Introduction to Marketing</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Second Semester
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>6A-115</td>
<td>Introduction to Taxation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6A-132</td>
<td>Accounting II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>6H-170</td>
<td>Management Decision Models</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

SECOND YEAR (SENIOR)
Full Semester
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>6A-130</td>
<td>Cost Accounting for Management Analysis and Control</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6A-144</td>
<td>Auditing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E-303</td>
<td>Microeconomics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E-306</td>
<td>Electives</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

Spring Semester
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>6A-144</td>
<td>Advanced Tax Topics (elective)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6A-113</td>
<td>Electrical Accounting III</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6B-165</td>
<td>Business Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6H-418</td>
<td>Law and Business</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6I-420</td>
<td>Electives</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Program 2
This program is for students with a bachelor's degree in business who have concentrated their study in an area other than accounting [e.g., economics]. Typically, 45 semester hours are required for the major's degree in accounting, including 15 semester hours of undergraduate accounting courses (6A-115, 6A-120, 6A-131, 6A-132, and 6A-144), 15 semester hours of 200-level accounting courses, and 15 semester hours of other graduate level courses. Specific content of elective course work is determined by each student's background and area of interest.

Program 3
This program is for students who have earned a bachelor's degree in business who have limited time to pursue studies in business or accounting.

Each student's program is specially designed to eliminate academic deficiencies in quantitative methods, business, and accounting. For students with no previous accounting or business study, the following courses are required. Their usual are incorporated into a plan of study lasting approximately two and one-half calendar years. However, many program 3 students may have academic backgrounds that reduce the course requirements.

ACCOUNTING
<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>6A-115</td>
<td>Introduction to Taxation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6A-130</td>
<td>Cost Accounting for Management Analysis and Control</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6A-131</td>
<td>Financial Accounting I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6A-132</td>
<td>Financial Accounting II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6A-144</td>
<td>Auditing</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>6A-220</td>
<td>Accounting Theory I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6A-221</td>
<td>Accounting Theory II</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Graduate Program

Doctor of Philosophy

See "Interdepartmental Graduate Programs" in the College of Business Administration section of the Catalog.

Courses

For Undergraduates and Graduates

6A.113 Taxes and Business Decisions
3 s.h.

6A.115 Introduction to Taxation
3 s.h.

6A.120 Financial Accounting Reporting
3 s.h.

6A.125 Cost Accounting
3 s.h.

6A.131 Introductory Accounting
3 s.h.

6A.142 Financial Accounting
3 s.h.

6A.143 Financial Management
3 s.h.

6A.145 Corporate Financial Management
3 s.h.

6A.150 Financial Management
3 s.h.

6A.151 Financial Accounting
3 s.h.

6A.152 Taxation
3 s.h.

6A.153 Taxation
3 s.h.

6A.154 Taxation
3 s.h.

6A.155 Taxation
3 s.h.

6A.156 Taxation
3 s.h.

6A.157 Taxation
3 s.h.

6A.158 Taxation
3 s.h.

6A.159 Taxation
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6A.160 Taxation
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6A.161 Taxation
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6A.162 Taxation
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6A.163 Taxation
3 s.h.

6A.164 Taxation
3 s.h.

6A.165 Taxation
3 s.h.

6A.166 Taxation
3 s.h.

6A.167 Taxation
3 s.h.

6A.168 Taxation
3 s.h.

6A.169 Taxation
3 s.h.

6A.170 Taxation
3 s.h.

6A.171 Taxation
3 s.h.

6A.172 Taxation
3 s.h.

6A.173 Taxation
3 s.h.

6A.174 Taxation
3 s.h.

6A.175 Taxation
3 s.h.

6A.176 Taxation
3 s.h.

6A.177 Taxation
3 s.h.

6A.178 Taxation
3 s.h.

6A.179 Taxation
3 s.h.

6A.180 Taxation
3 s.h.

6A.181 Taxation
3 s.h.

6A.182 Taxation
3 s.h.

6A.183 Taxation
3 s.h.

6A.184 Taxation
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6A.185 Taxation
3 s.h.

6A.186 Taxation
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6A.187 Taxation
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6A.188 Taxation
3 s.h.

6A.189 Taxation
3 s.h.

6A.190 Taxation
3 s.h.

6A.191 Taxation
3 s.h.

6A.192 Taxation
3 s.h.

6A.193 Taxation
3 s.h.

6A.194 Taxation
3 s.h.

6A.195 Taxation
3 s.h.

6A.196 Taxation
3 s.h.

6A.197 Taxation
3 s.h.

6A.198 Taxation
3 s.h.

6A.199 Taxation
3 s.h.

6A.200 Taxation
3 s.h.
College of Liberal Arts and the B.B.A. in the College of Business Administration.

The B.A. program is designed to achieve a balance between economists, mathematicians, and students select a major area for intensive study and specializes. The program has three components: a coordinated sequence of core courses, a set of elective courses, and a dissertation.

COMMUNICATION

First Semester

6E-290 Mathematics for Economists I 3 s.h.
6E-226 Macroeconomics I 3 s.h.
6E-204 Macroeconomics II 3 s.h.
6E-215 Introduction to Mathematical Statistics 3 s.h.
Second Semester

6E-290 Mathematics for Economists II 3 s.h.
6E-225 Macroeconomics II 3 s.h.
6E-220 Macroeconomics I 3 s.h.
220-134 Introduction to Mathematical Statistics 3 s.h.
Third Semester

6E-221 Econometrics 3 s.h.
Fourth Semester

6E-222 Applied Economics 3 s.h.

Written examinations in microeconomics and macroeconomics before the second year and a substantial research paper before the beginning of the third year completes the requirements.

FIELD COMPONENT

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive study in a field and to include courses that enable students to understand the relationship between their specialty and related fields. Students must achieve a 3.0 minimum grade-point average in the major area courses.

DISCUSSION

Students must present and defend a dissertation prospectus during their third year. Attraction to candidacy is granted upon successful defense of the prospectus. Submission of the complete dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Courses

Primarily for Undergraduates

600-100 Cooperative Education Internship 3 s.h.
602-100 Principles of Macroeconomics 3 s.h.
602-102 Principles of Microeconomics 3 s.h.
602-104 Principles of Economics 3 s.h.
602-106 Principles of Business Economics 3 s.h.
602-108 Principles of Business Administration 3 s.h.
602-110 Principles of Financial Management 3 s.h.
602-112 Principles of International Finance 3 s.h.
602-114 Principles of Corporate Finance 3 s.h.
602-116 Principles of Business Ethics 3 s.h.
602-118 Principles of Business Law 3 s.h.
602-120 Principles of Marketing 3 s.h.
602-122 Principles of Management 3 s.h.
602-124 Principles of Human Resources Management 3 s.h.
602-126 Principles of Accounting 3 s.h.
602-128 Principles of Information Systems 3 s.h.
602-130 Principles of Statistics 3 s.h.
602-132 Principles of Economics 3 s.h.
602-134 Principles of Monetary Policy 3 s.h.
602-136 Principles of Fiscal Policy 3 s.h.
602-138 Principles of Public Policy 3 s.h.
602-140 Principles of Financial Economics 3 s.h.
602-142 Principles of Business Law 3 s.h.
602-144 Principles of Corporate Finance 3 s.h.
602-146 Principles of International Finance 3 s.h.
602-148 Principles of Business Ethics 3 s.h.
602-150 Principles of Business Law 3 s.h.
602-152 Principles of Public Policy 3 s.h.
602-154 Principles of Financial Economics 3 s.h.
602-156 Principles of Corporate Finance 3 s.h.
Courses

Primarily for Upper-Division Undergraduates

Primarily for Graduates

Applications Management

Primarily for Undergraduates

Graduate Program

See "Undergraduate Graduation Progression" in the College of Business Administration section of the Catalog.
Graduate Programs

Master of Arts

A nonthesis Master of Arts in Management Information Systems is available to students with appropriate computer science experience, including a thorough background in structured programming (for example, 22C:10-11). Requirements include up to 15 semester hours of foundation courses (to satisfy the ABET Common Body of Knowledge requirement) and at least 35 additional semester hours of coursework selected from the following.

Economics and Behavioral Science

Total of 3-semester hours.
6N:213 Management Economics 3 s.h.
6N:227 Administrative Science 3 s.h.
6N:228 The Economic Environment of the Firm 3 s.h.

Research Methodology

Total of 2-semester hours.
6N:280 Management Information Systems, M.B.A. 3 s.h.
6N:281 Organizational Systems Design 3 s.h.
6N:282 Applied Database Management 3 s.h.
6N:296 Business Telecommunications 3 s.h.

One or more of these:
6N:283 Organizational Dynamics 3 s.h.
6N:294 Programming 3 s.h.
6N:295 Artificial Intelligence for Management 3 s.h.
6N:296 Artificial Intelligence for Management 3 s.h.

Computer Science

Total of 6 semester hours.
22C:121-122 Software Engineering I 3 s.h.
22C:144 Database Management Systems 3 s.h.

Students may substitute other computer science courses for 22C:115 and/or 22C:144 with the approval of their advisors.

Electives

Total of 3-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 Program in Management" in the College of Business Administration section of the catalog.

Courses

Primarily for Undergraduates

6N:190 Cooperative Education Internship 0-9 s.h.
6N:191 Computer Analysis 3 s.h.
6N:192 Techniques in management sciences; management, computer systems, analysis, programming, information systems, use of applications software. Prerequisites: 22A:17 and 22E:18.
6N:193 Statistical Analysis 3 s.h.
6N:195 Production Management 3 s.h.

For Undergraduates and Graduates

6N:191 Directed Readings 4-6 s.h.

6N:280 Management Information Systems, M.B.A. 3 s.h.
6N:281 Organizational Systems Design 3 s.h.
6N:282 Applied Database Management 3 s.h.
6N:296 Business Telecommunications 3 s.h.

One or more of these:
6N:283 Organizational Dynamics 3 s.h.
6N:294 Programming 3 s.h.
6N:295 Artificial Intelligence for Management 3 s.h.
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Students may substitute other computer science courses for 22C:115 and/or 22C:144 with the approval of their advisors.

Electives

Total of 3-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 Program in Management" in the College of Business Administration section of the catalog.

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Computer Science

Total of 6 semester hours.
22C:121-122 Software Engineering I 3 s.h.
22C:144 Database Management Systems 3 s.h.

Students may substitute other computer science courses for 22C:115 and/or 22C:144 with the approval of their advisors.

Electives

Total of 3-semester hours.
Graduate Programs
See "Interdepartmental Graduate Programs" in the College of Business Administration section of this Catalog.

Courses

Primarily for Upper-Division Undergraduates

For Undergraduates and Graduates

Undergraduate Programs

The Department of Marketing offers courses that are relevant to business, social, and public policy. Students graduating with majors in marketing should find employment opportunities in marketing research, advertising, sales management, retail management, public relations, and consumer behavior. Students graduating with minors in marketing will be better prepared for positions in advertising, sales management, retail management, and public relations. The requirements for the Bachelor of Business Administration with a major in marketing are as follows:

Marketing 265

Artificial Intelligence for Management 3 s.h.

Marketing Research Methodology 3 s.h.

Marketing Research Methodologies 3 s.h.

Graduate Research and Analysis 3 s.h.

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Graduate Research and Analysis 3 s.h.
College of Dentistry
Doctor of Dental Surgery

The College of Dentistry is both administratively and physiologically an integral part of the University. It draws on and contributes to the University's diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the College of Medicine, Nursing, and Pharmaceutics, The University of Iowa Health Center, whose teaching, research, and service activities have a national reputation.

The basic educational program leading to the Doctor of Dental Surgery (D.D.S.) degree consists of a three-year period 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, neurology

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 hygiene, oral pathology, oral radiology, and periodontal care, endodontics, and maxillofacial surgery, prosthodontics

Community dentistry: ethics, epidemiology, nutrition, preventive dentistry, community health, principles of human behavior, dental economics, dental jurisprudence, geriatrics, communication.

Pediatric dentistry: facial growth and development, pediatric dentistry and orthodontics.

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient-treatment situations during the first year.

The second-year program continues the basic sciences and technical courses, plus definitive clinical patient treatment.

Throughout the students receive 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 to an extensive array that simulates conditions in private dental practice. They also are exposed to various extramural health programs that include hospitals, mental health institutions, nursing homes, and the Special Patient Care Clinic. They also may participate in the Colorado Migrant Worker Program or the Foreign Dental School Exchange Program, which gives exposure to levels of dentistry usually not observable in an academic setting.

Promotions and Graduation

Student promotions and graduations are determined by the collegiate academic and professional performance committee, which is made up of individuals appointed by the dean from the basic, preclinical, and clinical sciences and from other academic areas of the college. The performance committee may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unsuited to be promoted or to enter the dental profession.

Committee for Appeals

When a student has been asked to withdraw from the college or wards 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 obtainable, 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 insight that may have been gained, could have influenced the collegiate academic and professional performance committee's decision.

The recommendation of the appeals committee is submitted to the dean for final action.

Dentistry Licensure Examination

Iowa and the states of Colorado, Illinois, Kansas, Massachusetts, Minnesota, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming bring to the Central Regional Dental Testing Service, which serves as the testing agency for clinical competence for licensure in these states. Examinations are administered at selected testing sites for local schools of dentistry within the region. Examination dates are determined by the Central Regional Dental Testing Service and are available from its administrative office.

For a five-year period, member states accept successful completion of Central Regional Dental Testing Service requirements in lieu of individual state's clinical examination requirements. The examination is then filed with the individual state board of dentistry, and states also may require the National Board, conducted by the American Dental Association. In lieu of individual state written examinations, the National Board examination also is required in many states. Existing, facilities.

Facilities

The Dental Science Building, a major unit of the Iowa health center campus, enables the college to accept research activities and facilitates the development of interdisciplinary communications in health center testing, research, and patient care activities. The health center includes the Colleges of Medicine, Nursing, and Pharmacy; the Schools of Biology, Veterinary Medicine, and the Dornsie Library for the Health Sciences. The latter library houses all of the University's special health science holdings, a total of 194,750 volumes, including more than 18,000 volumes on dentistry and allied scientific subjects, and more than 280 dental journals the college currently receives. This library contains more than 2,000 journals from the combined health professions.

The Dental Science Building consists of two, four-story, concrete, brick, and stucco wings located on either side of a mall.

The right side is devoted to clinical teaching, with various dental departments, clinic facilities, support laboratories, research space, offices, and a cafeteria. The north wing houses teaching laboratories, research laboratories, the first chemotherapy area, educational media center, and programs in preventive and community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local chapters. There are also local chapters of the American Association of Dental Schools, the Association of Women Dentists, the American Society of Dentistry for Children, and the Student National Dental Association. Students who risk in the upper 12 percent of their senior class are eligible for election to Omicron Kappa Upsilon, national scientific honorary dental society. Two national dental professional organizations, Delta Sigma Delta and Phi Omegae, have chapters housed at Iowa. Both societies 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-Instruction Management System (SIMS), which provides students with instruments and supplies necessary throughout dental training. The SIMS usage fee for the D.D.S. is payable in installments over the first half of the program.

A fee for expendable laboratory supplies is charged each of the first two years. A $100 deposit fee also must be deposited; the deposit is refunded upon graduation or termination of enrollment.

Financial Aid

Financial assistance for dental students is based on need. Students apply for the Health Professions Loan Program under the Family Financial Statement (FFS), which includes an evaluation of parent income and assets. Very low dental students are eligible for Health Professions Loans, Perkins Loans, state grants, and Stafford Loans. Interest on these loans is deferable 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 of the University of Iowa for updated information.
on financial assistance available to dental students.

Dental Research Awards (DRA)

Dental Research Awards are given each year to qualified entering dental students. The DRA provides financial support ranging from $2,000 to $8,000 per year for as many as four years, if the student maintains an appropriate level of performance. Awards are engaged as assistance in research work with faculty mentors.

Other Awards

The college offers merit Awards that provide financial support for as many as four years, based on satisfactory performance in school.

Minorities

Financial assistance grants and loans are available to minority students who qualify under The University of Iowa's Educational Opportunity Program and the Opportunity at Iowa Program.

Arkansas Contract

Under an agreement with The University of Iowa College of Dentistry, the state of Arkansas makes supplemental tuition payments for its residents who are dental students at Iowa. These payments enable the Arkansas students to pay the equivalent of Iowa resident tuition for their study here.

Admission

Applicants must submit a completed application form to the American Association of Dental Schools Application Service (AADSAS). The AADSAS forms are available from the University Office of Admissions or the College of Dentistry Academic Affairs Office.

Applications are accepted beginning January 1 of the year prior to the year for which application is made. Completed applications should be on file at AADSAS by November 30. Applicants should apply as early as possible and would not delay until after the Dental Admission Test (DAT) is taken. Notification of acceptance is sent beginning December 1.

Prospective dental students are encouraged to enroll in an education program that leads to a master's degree in medicine. The school of medicine admits only students who have completed their undergraduate college upon completion of the freshman year in dentistry law "Combined Liberal Arts-Dentistry Program" in this section of the Catalog.

Predental Studies

The basic academic requirements for admission to the College of Dentistry is the completion of no fewer than 94 semester hours of academic study at an accredited college. The predental program of study should include the following:

English: satisfactory accomplishment in English composition, rhetoric, and speech

chemistry: two years (equivalent to 16 semester hours), of which one year (equivalent to 8 semester hours) must include inorganic chemistry, and of which one-fourth must be laboratory work.

Biological Sciences: one year (equivalent to 8 semester hours), which must include appropriate laboratory work; the requirement may be satisfied by a one-year course in general microbiology, biology, or cell biology and cell physiology are also recommended.

Electives: sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.

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 hour requirements toward the bachelor's degree.

The provision for acceptance by the College of Liberal Arts of 30 semester hours of elective credit earned in any other college of the University allows students to 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 complete the College of Liberal Arts residence requirements before entering in the College of Dentistry. See "Early Admission to Medicine or Dentistry" in the College of Liberal Arts section of the Catalog.

Grade-Point Average Requirement

Applicants should have a cumulative grade-point average of at least 2.50. The admission committee gives special consideration to the quality of applicants' coursework work is 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 will be contacted to arrange an interview, usually after the AADSAS application is received by the admissions office.

Required Dental Admission Test

All applicants must complete the Dental Admission Test (DAT) prior to the Council on Dental Education of the American Dental Association. Tests are given at least twice a year. The University of Iowa is a testing center.

Applicants must take the test no later than their scheduled appointment. The test application form is available from the University Office of Admissions, the College of Dentistry Academic Affairs Office, or the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611. Test application deadlines are typically 30 to 45 days prior to the test.

Deposit by Accepted Applicants

Applicants accepted before February 1 are required to submit a $500 deposit within 30 days after notification of acceptance. Applicants admitted after February 1 must submit the deposit within two weeks after notification of acceptance. This deposit is nonrefundable, but is credited toward the fees paid.

Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

Additional Admission Considerations

The authority of the specific requirements listed for admission does not ensure admission to the College of Dentistry. Prospective applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study of practice of dentistry. The committee considers applicants' academic averages, science averages, DAT scores, letters of recommendation, the interview, and other letters.

Early Admissions

The College of Dentistry has an early admissions program set up with The University of Iowa Veterinary College to provide promise of admission to the College of Dentistry. Prospective students interested in entering the dental school for the first year of their undergraduate college education with promise of matriculation to the College of Dentistry until they have completed three years of study. Education during these three years, students are engaged in a liberal arts curriculum that incorporates the dental preclinical 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.
Graduate and Postgraduate Study

Programs of study leading to the Master of Science are offered by the College of Dentistry. Departments of Dental Hygiene, Prosthodontics, Operative Dentistry, Endodontics, Oral Pathology and Diagnosis, Oral and Maxillofacial Surgery, Orthodontics, Pediatric Dentistry, Periodontics, and Preventive and Community Dentistry.

Admission to any of the graduate programs requires satisfaction of all requirements for admission to the College of Dentistry, possession of the Doctor of Dental Surgery degree or its equivalent (canvass for dental hygiene), and appropriate approval.

Departments also offer postgraduate programs of study designed as preparation for clinical specialty practice. These programs do not lead to an academic degree. Prerequisites for admission to the postgraduate programs are the same as for graduate programs. A certificate is awarded upon successful completion of the postgraduate program.

Basic Sciences in the Dental Curriculum

The following lecture courses are offered by departments other than dentistry and are required part of the dental curriculum:
- 660:101 Human Gross Anatomy for Dental Students
- 660:102 General Histology for Dental Students
- 661:104 Oral Histology and Embryology
- 661:112 Health Sciences Microbiology
- 710:103 Introduction to Human Physiology
- 710:111 Oral Biology for Health Science: Dental
- 710:122 Molecular Physiology
- 710:161 Biochemistry for Dental Students

Courses

Nondepartmental

112:041 Dental Hygiene I 1 h
112:042 Dental Hygiene II 1 h
112:043 Dental Hygiene III 1 h
112:044 Dental Hygiene IV 1 h
112:045 Dental Hygiene V 1 h
112:046 Dental Hygiene VI 1 h
112:047 Dental Hygiene VII 1 h
112:048 Dental Hygiene VIII 1 h

Dental Hygiene

Chair: Pauline Brine
Associate professors: Pauline Brine, Kee Meacham
Clinical assistant professor: Dean Everard
Adjunct instructors: Bruce Ackerman, Mary Jansen, Steve Bocks, Jane Duggan
Undergraduate degree: B.S. in Dental Hygiene
Graduate degree: M.S. in Dental Hygiene

Dental Hygiene

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Undergraduate Program

Dental hygiene applies knowledge of the basic, social, dental, and clinical sciences in providing services for the prevention and control of oral conditions.

The Bachelor of Science program in dental hygiene includes two years of general education followed by two years of specialized study. The curriculum is accredited by the Commission on Dental Accreditation of the American Dental Association. Program graduates are prepared to take the national registration, and state dental hygiene licensure examinations required for dental hygiene practice.

Included in the General Education is required courses and social sciences. These courses provide the student with educational preparation to disciplines relevant to specialized study in dental hygiene and associated medical and dental sciences.

Students take the specialized courses during the junior and senior years. In the junior year, students are required to complete the following: 71:130 Introduction to Pathology, 82:104 Introduction to Bacteriology, 82:104 Operative Dentistry Laboratory for Hygienists, 86:101 Introduction to Oral Pathology, 86:102 Oral Pathology for Dental Hygienists, and 86:104 Anesthesia and Antigens, 88:101 Dental Anatomy, and 88:112 Head and Neck Anatomy.

In addition, seniors learn the basic theory and clinical skills required for dental hygiene practice in 86:103 Dental Hygiene Core I and 86:104 Introduction to Clinical Dental Hygiene, 86:105 Dental Hygiene Core II, 86:106 Fundamentals of Clinical Dental Hygiene, which integrate content in non-medical–dental follow-up with the theory and practice of dental hygiene.

During the senior year, students advance their specialization in the following: 86:112 Advanced Periodontal Disease for Hygienists, 86:112 Advanced Periodontal Disease for Hygienists, 86:112 Advanced Periodontal Disease for Hygienists, and 86:112 Advanced Periodontal Disease for Hygienists. Each student is assigned to work with a graduate student in periodontics, research projects on adults who have active periodontal disease. This experience not only advances dental hygiene clinical skills but promotes both the hygiene and graduate dental
students with a learning experience emphasizing the team approach.


Senior students also are enrolled in 225:101 Bacteriology and 312:145 Introduction to Geriatric Dentistry.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and epidemiology, are incorporated into an integrated core, 312:122 Practicum: Community Dental Health and 80:124 Seminar: Community Dental Health. Learning emphasis is on the relationship between the underlying theory and practical applications of community dental health.

Students possess broad community health issues faced in the provision of dental health care. Real problems enable them to apply knowledge of human behavior, basic principles of communication and marketing, and educational and research techniques to the design, implementation, and evaluation of health care and educational programs.

Aging Studies Program

As part of their dental hygiene studies, students may participate in a multidisciplinary program in aging studies. The program provides supportive course work for students who want to develop specialization in gerontology. For further information, see "Aging Studies Program" in the College of Liberal Arts section of the Catalog.

Minors and Double Majors

Dental hygiene students have the opportunity to develop a minor in another field or to pursue a double major. Students who select this option should plan their course of study with their dental hygiene advisor in close cooperation with faculty from the minor or other major department.

Admission

HIGH SCHOOL PREPARATION

Specific high school courses required are four years of English, four years of foreign language (proficiency Spanish), at least three years of mathematics, including two years of high school algebra and one year of high school geometry; and one year of biological sciences and chemistry.

COLLEGE PREPARATION

Eligibility for admission to the professional program in dental hygiene requires fulfillment of the General Education Requirements of the College of Liberal Arts and completion of the following dental hygiene prerequisites:

- Zoology or general biology-37
- Introduction to Chemistry-I b
- Inorganic Chemistry-4 General Chemistry I 3 s.h.
- Organic chemistry, including Biochemistry-4 General Chemistry II 3 s.h.
- Microbiology-61:14 Microbiology 4 s.h.
- Nutrition-106:100 Introduction Nutrition 3 s.h.
- Psychology-31:1180 Elementary Psychology 3 s.h.
- Sociology-31:1 Introduction to Sociology Principles 3 s.h.
- Anatomy-60:1 Principles of Human Anatomy and 60:100 Demonstration Laboratory Human Anatomy 4 s.h.
- Physiology-72:120 Human Physiology 4 s.h.

These prerequisites provide the educational basis for the dental hygiene course of study. In addition, students admitted to the professional program of study must complete registration in cardiovascular reconstruction (CFR) at the basic life support for health care providers level before they enter the program.

Completion of a bachelor's degree or an associate of arts degree from an Iowa Area Community College fulfills the General Education Requirements with the exception of the foreign language requirement and three semester hours of foreign civilization and culture. However, the completion of a two-year associate degree program in dental hygiene does not provide an appropriate background for transfer into the baccalaureate program at Iowa State University.

Students may begin the professional program in dental hygiene only in the fall. Those enrolled in The University of Iowa College of Liberal Arts need submit only the dental hygiene application. Transfer students must submit both College of Liberal Arts and dental hygiene applications.

Although applications are accepted and reviewed throughout the academic year, it is recommended that students apply for dental hygiene admissions by November 1 preceding the fall semester in which they wish to enter the program.

Graduate Program

The graduate program fulfills the need to prepare hygienists in the advancement of new knowledge in dental hygiene and to provide leadership in the profession. The graduate program also fulfills the need to prepare scholars in dental hygiene education. Therefore, graduate program goals emphasize the acquisition of advanced scientific knowledge in dental hygiene, the biological, social, and physical sciences; and build knowledge of and expertise in conducting research.

The curriculum design provides students with major concentrations in advanced dental hygiene education. In the social sciences area, students consider the implications of applied sociological, psychological, economic, political, and environmental concepts related to dental health. Selected topics examine societal values, structural elements of dental care delivery systems in relation to individual, family, and community oral health outcomes. Study in the educational field includes dental hygiene trends, with emphasis on dental hygiene education, elements of curriculum design, and the theory and application of methods, clinics, and problem-solving techniques in dental hygiene.

Approximately 14 semester hours are taken in assigned courses to acquire advanced knowledge in dental hygiene and 4 are taken in research methodology and thesis preparation and defense. The remaining 6 semester hours include electives in the biological and social sciences.

Effective course work related to the biomedical sciences may include microbiology, histology, biochemistry, and pathology, periodontology, and endodontics.

Topics emphasized in the social, economic, and political aspects of health include epidemiology, medical sociology, health care organization and administration, and health economics.

Students also are encouraged to consider taking courses in higher education, such as educational measurement, theories of learning, and administration.

Dental hygiene graduate students take the following courses.

- 80:201 Health Care Management 3 s.h.
- 80:111 Independent Study 3 s.h.
- 80:319 Seminar: Dental Hygiene Literature Review 3 s.h.
- 80:202 Evaluation of Dental Hygiene Research 3 s.h.
- 80:203 Research: Dental Hygiene 3 s.h.
- 80:205 Social Pattern and Civil Health 3 s.h.
- 80:206 Critical Dental Hygiene 3 s.h.
- 60:207 Selected Topics in Dental Health Education 2 s.h.
- 80:218 Dental Hygiene 3 s.h.
- 311:210 Statistical Methods for Dental Hygiene Practice 3 s.h.
- 71:143 Introduction to Statistical Methods 3 s.h.
- 311:212 Research Design in Dental Hygiene 2 s.h.

Although students may begin the 34-semester hour program during the summer session or fall semester, enrollment at the beginning of the fall semester is preferred. Most students should expect to take two academic years to complete degree requirements.

Admission

Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements include an acceptable score on the Graduate Record Examination (GRE). General Test and a 2.80 minimum undergraduate cumulative grade point average. The undergraduate education of the applicant should include courses equivalent to those in the undergraduate dental hygiene major at The University of Iowa.

Applications for admission must include official transcripts of all undergraduate academic records, an application form, two letters of reference, and GRE scores with the Office of Graduate and Professional College Admissions. Since these materials must be received before the candidate's application can be processed, students are encouraged to submit materials as

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early as possible prior to the semester for which admission is desired. Application is admission and information on the Graduate Program in Dentistry. Examination can be obtained from the graduate admissions office.

**Facilities**

University of Iowa dental hygiene majors receive their professional preparation in the University's modern Dental Science Building. This building is part of The University of Iowa Health Center complex, one of the nation's most outstanding health sciences teaching, research, and patient care facilities.

**Financial Aid**

In addition to financial assistance available to University students, there is a limited number of scholarship awards and loans specifically for undergraduate dental hygiene students. These loans are based on assessment of students' academic records as well as financial need. Financial support for graduate students is available through teaching assistantships and patient care service awards. Awards are based on students' academic record and potential contribution to the teaching and patient service goals of the program. Resident tuition is charged to out-of-state students who receive teaching assistantships or patient service awards. Low-interest loans are also available through the department.

Excellence in undergraduate and graduate scholarship is available for minority students who have demonstrated academic records. For further information, see "Financial Aid" in the College of Dentistry section of the Catalog.

**Courses**

For Undergraduates

Dental hygiene courses are open only to dental hygiene students.

**B.S. 110: Dental Anatomy** 2 h. Dental technology, morphologic characteristics of teeth, root pulpatic relationships and normal condensation, origins on resorption of dental laminae in clinical dental hygiene practice.

**B.S. 112: Head and Neck Anatomy** 1 h. Includes: neuromuscular anatomy.

**B.S. 115: Dental Hygiene Core I** 5 h. Clinical dental hygiene, periodontal assessment of patient oral and general health status, role of periodontal hygiene services in patient care.

**B.S. 116: Introduction to Dental Hygiene** 2 h. Clinical applications of content from B.S. 113, which is complete.

**B.S. 115: Dental Hygiene Core II** 3 h. Content of B.S. 112, except emphasis on assessment of health status, prevention of oral disease.

**B.S. 116: Fundamentals of Dental Hygiene** 3 h. Health education, descriptive periodontal disease, application of principles to clinical flow of events, including communication, segment assessment, periodontal disease, patient education, and periodontal maintenance.

**B.S. 111: Independent Study** 1 h. Enrollment by arrangement. See "Departmental Course Descriptions" for course description. 1 h.

**B.S. 112: Clinical Dental Hygiene** 7 h. Preparation of advanced dental hygiene care, emphasis on comprehensive preventive, clinical services.

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 a plan of study that equals or exceeds 90 semester hours. A certificate in endodontics also is awarded. The certificate program involves course work for up to 60 semester hours and requires no formal thesis. Candidates are expected to write a scientific paper of publishable quality, based on original research. An individual plan of study is prepared for each student.

**Endodontics**

Through the advanced programs, dentists develop their skills and acquire a broad knowledge of the endodontics specialty for teaching and practice, gain enough knowledge and experience in the educational process to be able to function confidently as dental educators; recognize the value of academic research; and develop the ability to plan, conduct, and report the results of research investigations.

Applications for the advanced programs in endodontics must be granted of an accredited U.S. college of dentistry or foreign equivalent and must comply with the requirements for admission to the Graduate College of The University of Iowa.

The advanced programs in endodontics begin July 1. Applications should be made for the preceding October. Students who have met the requirements for admission to the Graduate College must be accepted into the program by the Department of Endodontics. Application materials, which may request a personal interview with the applicant.

Students in the program must maintain a 3.0 grade point average to receive a certificate or degree. Students who fail at this level are allowed one semester to correct the deficiency. The master of science degree 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 required to resign 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**

**Preclinical**

**B.S. 110: Preclinical Endodontics** 2 h. Review of basic medical and biological principles for treatment of pulp pathology.


**B.S. 116: Clinical Endodontic Seminar** 1 h. Critical analysis of the literature in endodontics, endodontic procedures, diagnostic techniques, patient education, treatment of endodontic cases.
Advanced

83-200 Update in Endodontics 1 a.h.
Review of current diagnosis, treatment planning, clinical techniques.

83-205 Endodontic Literature Review I 1 a.h.
Current research.

83-220 Endodontic Literature Review II 2.3 a.h.
Conclusions of R-201.

83-227 Endodontic Literature Review III 2.3 a.h.
Conclusions of R-202.

83-228 Endodontic Literature Review IV 2.3 a.h.
Conclusions of R-203.

83-229 Research in Endodontics on
Topic: geriatric patients: preparation and management of incomplete treatment, comprehensive care, endodontics, aging, growth and development.

83-231 Thesis Projects in Endodontics

83-240 Endodontics Surgery Conference 2 a.h.
Embryology of root, relevant surgical techniques, treatment of lesions, diagnosis and treatment planning of endodontic cases, complications of endodontics.

83-241 Advanced Clinical Endodontics un
Clinical evaluation, two sessions in advanced, tegument, replants, implants, surgical access, root endodontics, endodontics.

83-250 Seminar in Endodontics I 3.2 a.h.
Pulp biology: histogenesis of pulp, test function, anatomy, physiology of supporting structures, pulp biology: concept of endodontics: its role in restorative dentistry.

83-251 Seminar in Endodontics II 3.2 a.h.
Necrotic coronal pulp, pulpal perforation, emphasis on instrumentation, disinfection, and psychological preparation for surgery.

83-252 Seminar in Endodontics III 3.2 a.h.
Clinical procedures, new technologies, occlusal problems, canal care, treatment in endodontics, operating procedures, operating procedures, solutions.

83-253 Seminar in Endodontics IV 3.2 a.h.
All clinical procedures, new technologies, emphasis on occlusal problems, canal care and treatment in endodontics, operating procedures, operating procedures, solutions.

83-255 Practice Teaching in Endodontics un

FAMILY DENTISTRY

Head: Daniel L. Holt
Professor: John V. Dunker, Donald L. Holt, Charles Sabolice, Jr., Vincent D. Williams, Gene L. Zach
Assistant professor: Ana C. Arnett, James N. Lavy
Assistant professors: Bruce G. Justman

Predoctoral Program

The Department of Family Dentistry is responsible for senior dental students' final synthesis of academic experiences. The major goal is the integration of previously learned clinical knowledge into a well-organized, systematic approach to the comprehensive dental treatment of patients. The experience encompasses approximately five weeks of the senior year.

Students spend five days a week in a clinical setting, where their gain experience in total patient management and care. Their clinical courses are designed to support their previous education. All areas of clinical and didactic instruction, patient management, and behavior and attitude 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.

Advanced Education in General Dentistry

The Department of Family Dentistry sponsors a predoctoral 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 comprehensive treatment for patients and to act as principal coordinators when specialists' services are necessary.

Residents are exposed to a broad range of clinical experience 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 65 percent of the program consists of general dental practice. Patient assignments are made to assure broad participation by type and complexity of treatment bid.

The didactic portion comprises approximately 15 percent of the total experience and consists of seminars by discipline-based faculty in all specialty areas. Dental emergency responsibilities are included in the program, as is one preceptorship, mismanagement, and postgraduate case presentations. Students help the residents become familiar with current literature and research.

The AEGD program lasts one year and carries a stipend. Recently, the program received a federal training grant to expand experiences in pedodontic dentistry and geriatric training in off-site facilities.

Applications for the program must be received at the time of accredited U.S. or Canadian dental schools. Further information is available from the Department of Family Dentistry, Applications should be received by October 15 for enrollment the following July 1.

Courses

Predoctoral

1 Credit  Advanced Operative REPAH

Discipline of comprehensive dental treatment in clinical setting, with clinical reservations, small group sessions, techniques, clinical instruction, self-instruction via a manual and supplementary slides, laboratory techniques, course evaluation, self-assessment, and a final project. Students work as a team to plan, execute, and evaluate treatment plans for selected cases of dental procedures for bus dental residents.

1 Credit  Practice Management Seminar

Discipline: review of current challenges associated with practice management, marketing and public relations, economics, team building, and related, and a small project.

1 Credit  Clinical Practice Management

Graduate

1 Credit  Advanced Clinical Dentistry I

Participation in selected predoctoral courses, presentation of treatment plans for patients with complex needs.

1 Credit  Advanced Clinical Dentistry II

Continuation of 1A.

1 Credit  Advanced Clinical Dentistry III

Continuation of 1B.

1 Credit  Advanced Clinical Dentistry IV

Continuation of 1C.

1 Credit  Thesis Preparation

Research, preparation of proposal, research methods, data gathering and analysis, computer methodology.

1 Credit  Advanced Diagnosis and Treatment

Advanced diagnosis and treatment of patients.

1 Credit  Advance Diagnosis and Treatment Seminar

Practice in advanced diagnosis and treatment of patients.

1 Credit  Practice Teaching in Endodontics

HOSPITAL FAMILY DENTISTRY

Meara Isaac, Issa C. Matsumoto
Division directors: Arthur Novak (Pedodontics), Robert A. Olson (Oral and Maxillofacial Surgery), David O. Modak (Family Dentistry)


Assistant professor: Susan A. Aquilino, Paul J. Cabo, Emily D. Dowdy, Brian H. Hamilton, William T. Johnson, Donald D. Jorje, Lisa R. Wilkes, Raymond Wolters, Deborah L. Zehret

Assistant professor: Suki L. Franco, Brian L. Han, James shiny, James R. Morcher

The College of Dentistry offers a Hospital dental clinical service at The University of Iowa, Hospital and Clinics. The service includes divisions of oral and maxillofacial surgery, family dentistry, and pediatric dentistry and densifies with the College's specialties of oral medicine, periodontics, endodontics, orthodontics, oral surgery, and prosthodontics. A one-year
Residency Program

The Residency Program in General Practice is intended to provide students with a broad base of professional practice in general dentistry. The program emphasizes clinical and didactic training on an individual basis and meets the clinical and educational requirements of the American Dental Association.

Candidates are selected on the basis of educational background, clinical experience, and the personal interview. The candidates are selected on the basis of personal interviews with the residents and dental students.

They are required to fulfill the requirements of the program, and the applicants are selected on the basis of the personal interviews with the residents and dental students.

Candidates 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 matching program sponsored by the American Association of Oral and Maxillofacial Surgeons.

The deadline to apply is September 15 for admission to July 1 of the next year. Applicants must be received after the match has been received and the staff takes official action.

Operative Dentistry

Resident: John W. Ruggiero
Professor: Stephen F. Harris, Karl Ohio, Gerald A. Levy
Associate professor: William A. Smith, Nathaniel A. Smith, John B. Blenk
Professor emeriti: William A. King, James M. N. H. A. Smith, John B. Blenk
Adjunct associate professor: Paul Murphy
Adjunct instructor: C. Fredrick E. Thoms, Edward P. Smith
Adjunct associate professor: Robert L. Stoker
Graduate degree: M.S. in Operative Dentistry

Procedural Program

Course work and clinical experiences in operative dentistry are fundamentals in the dental student's overall education. The preclinical training is designed to devote instructional time to laboratory and clinical experiences. The program provides many students to proceed successfully in operative dentistry during the fourth year of training.

Graduate Program

The Department of Operative Dentistry offers advanced training designed to improve proficiency in operative dentistry. The courses are designed to meet the needs of residents and dental students and will provide opportunities for the advancement of research and teaching.
ORAL PATHOLOGY, RADIOLOGY, AND MEDICINE

Head: Gilbert B. Joy

Professors: Peter J. Drago, Harold J. Hammer, Gilbert B. Joy, and Edward C. Moyer

Associate Professors: Francis D. Pizzitola, William J. McMichael, Steven D. Veuger, Wayne L. Wertz

Assistant Professor: Kathleen S. Rood

Adjunct Associate Professors: Barbara C. Edelstein, Thomas F. Williams

Adjunct Assistant Professor: George E. Kouri

Assistant Professor emeritus: Peter J. Drago

Graduate degree: M.S. in Stomatology

Preclinical 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, histopathological, 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

Stomatogeny is the science of structure, function, and disease of the oral cavity. Study methods include observation of higher forms, evaluation of clinical signs and symptoms, and use of histological, microscopic, and radiographic procedures to establish a diagnosis and a plan for treatment.

The postgraduate programs are diverse and flexible, emphasizing oral pathology and oral medicine. These disciplines provide comprehensive oral pathology, oral and maxillofacial radiology, or oral medicine. Students can continue their education emphasizing oral pathology, oral and maxillofacial radiology, or oral medicine, or allow postgraduate students to obtain advanced clinical, didactic, and research-related education while pursuing a Master of Science degree.

M.S. in Stomatology with Oral Pathology Emphasis

Dental school graduates in this program pursue comprehensive knowledge of oral pathology and health sciences in preparation for teaching and research. A minimum of 25 semester hours of satisfactory graduate credit is required. Candidates for the M.S. program and submit a thesis based on the results of research conducted during their course of study.

Certificate in Oral Pathology and M.S. in Stomatology with Oral Pathology Emphasis

This program combines the minimum requirements of the certificate in oral pathology and the master’s degree program. Completion time is usually 36 to 48 months. The educational requirements of the certificate program in oral and maxillofacial radiology meet the requirements for preparation of oral pathology specialists as set forth by the American Board of Oral Pathology and the American Board of Oral Radiology.

M.S. in Stomatology with Oral and Maxillofacial Radiology Emphasis

Dental school graduates in this program pursue comprehensive study of basic and clinical research and clinical radiography for the oral cavity. A minimum of 44 semester hours of satisfactory graduate credit is required. Candidates for the M.S. program and submit a thesis based on the results of research conducted during their course of study.

Certificate in Oral and Maxillofacial Radiology and M.S. in Stomatology with Oral and Maxillofacial Radiology Emphasis

This program combines the minimum requirements of the certificate in oral and maxillofacial radiology and the master’s degree program. Completion time is usually 36 to 48 months. The educational requirements of the certificate program in oral and maxillofacial radiology meet the requirements for preparation of oral radiologists as set forth by the American Board of Oral Radiology and the American Board of Oral Pathology.

M.S. in Stomatology with Oral Medicine Emphasis

Students in this program pursue comprehensive study of oral health sciences in preparation for teaching and research. A minimum of 42 semester hours of graduate credit is required, which includes the preparation based on research conducted during the program.

Certificate in Oral Medicine and M.S. in Stomatology with Oral Medicine Emphasis

This program combines the minimum requirements of the certificate in oral medicine and the master’s degree program. Completion time is usually 24 to 36 months. The certificate program in oral medicine meets the requirements for preparation of oral medicine specialists as 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</th>
<th>Title</th>
<th>Branch</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 200</td>
<td>Advanced Anatomy for Health and Medical Students</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>OR 230</td>
<td>Basic Pathology for Medical Students</td>
<td>10 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

Clinical Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Branch</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 200</td>
<td>Oral Pathology Literature Review</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>OT 220</td>
<td>Clinical Pathology</td>
<td>10 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

Facilities

The facilities are designed exclusively for the training of oral physicians and oral surgeons. The department includes a well-equipped facility for conducting research and patient care. In addition, the College of Dentistry has joint facilities for conducting research involving histology, histotechnology, and molecular technology.
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 College of Dentistry. In order to be considered for admission, applicants must have a 2.70 cumulative grade point average (on a 4.0 scale)...

Dental Hygiene

86:101 Introduction to Dental Hygiene
8:00 AM - 12:00 PM

86:105 Clinical Dental Hygiene
8:00 AM - 12:00 PM

86:110 Oral Pathology
8:00 AM - 12:00 PM

86:201 Oral Pathology
8:00 AM - 12:00 PM

86:225 Physical, Laboratory, and Historical...
Master of Science

The Master of Science program is designed to provide training in 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 a 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 24 to 36 calendar months of full-time study.

Ad Hoc Interdisciplinary Ph.D. Program

Under Graduate College regulations, proposals for interdisciplinary doctoral programs of study may be developed. The Graduate College grants final approval of such individual programs. The Department of Periodontics assists in developing individual doctoral programs designed to train dentists for careers in teaching and research in periodontal diseases. The programs that include the Institutional Dental Science Program are compatible with the basic sciences.

Certification

The certification program provides a sound foundation for the clinical practice of periodontics and may be combined with the Ph.D. program. The program meets the 'requirements of the Commission on Dental Accreditation of the American Dental Association for advanced dental education programs in periodontics but does not meet eligibility requirements for certification by the American Board of Periodontology.

Completion of the program requires 24 to 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 D.M.D. degree and satisfactory completion of undergraduate education. (See the Graduate College section of the C.0. Guide) National Dental Board Examination scores, if available, are required. Interviews are encouraged but not mandatory.

Periodontal Progamm

The department has 20 modern, well-equipped laboratories dedicated exclusively to periodontics, and access to hospital experience in the University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Centers, both nearby. Research facilities include a departmental research laboratory and collegial laboratories in histology, histomorphology, immunohistochemistry, tissue culture, molecular biology and biochemistry, and microbiology, as well as animal facilities. These collegial facilities are in addition to those available by arrangement with the University of Iowa Hospitals and Clinics, Hospitals Medical Research Building, and medical laboratories; and the Veterans Affairs Medical Center.

Financial Aid

Applicants may be financially prepared to undertake unassisted graduate study. Scholarships and loans are available, depending on available resources.

Courses

92.044 Introduction to Periodontology 2 s.h.
92.045 Advanced Periodontology 2 s.h.
92.046 Periodontal Methods I 2 s.h.
92.047 Periodontal Methods II 2 s.h.
92.146 Periodontal Pathology 2 s.h.
92.145 Periodontal Therapy 2 s.h.

Junior Doctoral Studies 2 s.h.

Predoctoral 1-2 s.h.

92.044 Periodontal Methods I 2 s.h.
92.045 Periodontal Methods II 2 s.h.
92.046 Periodontal Pathology 2 s.h.
92.145 Periodontal Therapy 2 s.h.

Graduate 2-3 s.h.

Predoctoral courses 2 s.h.

92.044 Periodontal Methods I 2 s.h.
92.045 Periodontal Methods II 2 s.h.
92.046 Periodontal Pathology 2 s.h.
92.145 Periodontal Therapy 2 s.h.

92.044 Introduction to Periodontology 2 s.h.
92.045 Advanced Periodontology 2 s.h.
92.046 Periodontal Methods I 2 s.h.
92.047 Periodontal Methods II 2 s.h.
92.145 Periodontal Therapy 2 s.h.

Graduate 2-3 s.h.

92.044 Introduction to Periodontology 2 s.h.
92.045 Advanced Periodontology 2 s.h.
92.046 Periodontal Methods I 2 s.h.
92.047 Periodontal Methods II 2 s.h.
92.145 Periodontal Therapy 2 s.h.

Graduate 2-3 s.h.

92.044 Introduction to Periodontology 2 s.h.
92.045 Advanced Periodontology 2 s.h.
92.046 Periodontal Methods I 2 s.h.
92.047 Periodontal Methods II 2 s.h.
92.145 Periodontal Therapy 2 s.h.

Graduate 2-3 s.h.

92.044 Introduction to Periodontology 2 s.h.
92.045 Advanced Periodontology 2 s.h.
92.046 Periodontal Methods I 2 s.h.
92.047 Periodontal Methods II 2 s.h.
92.145 Periodontal Therapy 2 s.h.

Graduate 2-3 s.h.

92.044 Introduction to Periodontology 2 s.h.
92.045 Advanced Periodontology 2 s.h.
92.046 Periodontal Methods I 2 s.h.
92.047 Periodontal Methods II 2 s.h.
92.145 Periodontal Therapy 2 s.h.

Graduate 2-3 s.h.
Admissions
Minimum requirements for admission to both programs correspond to the minimum requirements for admission to the Graduate College. In addition, applicants must hold a D.D.S. or D.M.D. or its foreign equivalent. An interview may be requested. Both programs last a minimum of 24 months and usually begin July 1. Application deadline is November 1.

Courses

Predoctoral:
84.122 Principles of Occlusion 2 a.h.
Complex of occlusion, mandibular, interocclusal approach.

84.140 Removable Prosthetic Technique
Laboratory
Technical procedures for construction of complete and removable partial dentures.

84.141 Removable Prosthetic Technique
Laboratory
Laboratory courses.

84.142 Fixed Prosthetic Technique Lecture
Definitional, theoretical techniques for casting of metal, porcelain fused to metal.

84.143 Fixed Prosthetic Technique Laboratory
Technical procedures for construction of fixed prostheses.

84.160 Removable Prosthetic Clinic
Clinical procedures for construction of partial dentures, removable partial dentures, removable partial prosthesis.

84.161 Removable Prosthetic Seminar 1 a.h.
Knowledge of differential, care of appliances and technique applied to clinical removable prosthetic procedures.

84.179 Removable Prosthetics: Clinical Practice
Exposure to clinical work environment and technique applied to clinical fixed prosthetic procedures.

84.177 Fixed Prosthetic Seminar 1 a.h.
Knowledge of differential, care of appliances and technique applied to clinical fixed prosthetic procedures.

Graduate
84.220 Fixed Prosthodontics Seminar I
1 a.h.
Preclinical, research topics.
84.221 Fixed Prosthodontics Seminar II
1 a.h.
Clinical prosthodontics, orthodontic, research literature.

84.222 Removable Prosthetics Seminar I
1 a.h.
Diagram, theoretical principles.

84.162 Occlusion Seminar
1 a.h.

84.224 Removable Prosthetic Materials
2 a.h.
Clinical materials selection, characteristics and properties of ceramic, porcelain, resins. Same as 88.224.

84.225 Complete Denture Seminar I
1 a.h.
Principles, principles, concept of construction, current research, current materials.

84.226 Complete Denture Seminar II
1 a.h.
Principles, principles, concept of construction, current research, current materials.

84.227 Complete Denture Seminar II
1 a.h.
Principles, principles, concept of construction, current research, current materials.

84.228 Removable Partial Denture Seminar I
1 a.h.
Principles, principles, concept of construction, current research, current materials.

84.229 Removable Partial Denture Seminar II
1 a.h.
Principles, principles, concept of construction, current research, current materials.

84.230 Removable Prosthodontics
Lecture, review, product specifications, case selection for prosthetic cases.

84.231 Thesis Preparation: Prosthodontics
Thesis preparation, defense.

84.232 Nontraditional Research Vocabularies
Materials research, in the College of Dentistry, use of nontraditional techniques.

84.240 Advanced Clinical Removable Prosthodontics
Fixed prostheses.

84.241 Technique Methods: Removable Prosthodontics
Methods for construction of complete, removable partial dentures.

84.242 Practice Teaching Prosthodontics
Clinical, clinical teaching techniques.

84.245 Advanced Clinical Fixed Prosthodontics
Fixed prosthetics.

84.246 Technique Methods: Fixed Prosthodontics

84.250 Journal Club
Prosthodontics, current literature.

84.251 Clinical Issues in Prosthodontics
Treatment planning, diagnosis for complex prosthodontic patients, interdisciplinary.

84.252 Leadership Assignments: Prosthodontics
Intraoral, extracorporeal, selection of materials, selection of treatments.
The nation's first university-level professional major in education was established at The University of Iowa in 1874. 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 governor of the college has been a leader in a variety of educational fields. Particularly noteworthy have been contributions in the fields of educational testing and measurement. The help for the foundation for today's testing and measurement industry, making Iowa one of the best-known centers for this educational specialty.

The college has four divisions: Counseling Education; Curriculum and Instruction; Planning, Policy, and Leadership Studies; and Psychological and Quantitative Foundations.

Teacher Education Program

The College of Education at the University of Iowa offers three major baccalaureate degree-teacher preparation programs. Two of these, elementary education and health occupations education, provide 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 (including teaching endorsement) programs.

Preparation for special education teaching is offered at the graduate level. A limited number of undergraduate special education courses are open to all students having an interest in this area, to those from other teacher education programs, and to those planning to pursue graduate degrees in special education.

All students admitted to a teacher education program (TEP) must complete College of Liberal Arts and Social Sciences Education Requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies.

Undergraduate Admission to Teacher Education Programs

Undergraduate applicants to the University of Iowa who are interested in becoming teachers indicate their interest to the elementary major, health occupations major, or a specific secondary endorsement program on their application or admission. This results in a "Pre-licensure Major" (TP) or a "Secondary Interest" (TP) notation on the student's official record. Eligible transfer students may automatically send TEP application materials from the Office of Admissions upon final admission 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 applications to teacher education programs is November 1. Applicants who do not meet the deadline may submit applications by either November 15 or April 15 for the consideration and may be accepted if qualified and if openings in the program occur.

General Requirements

Admissions to teacher education programs are competitive. Admission requirements may vary by program area and are based on demand and faculty availability. In order to be considered for admission to a teacher education program, an undergraduate student must have:

- been admitted to the University of Iowa as a degree candidate;
- completed the American College Tests (ACT) or the Scholastic Aptitude Test (SAT);
- attained sophomore standing (completed 30 semester hours) prior to the semester during which enrollment is made in the teacher education sequence of courses;
- achieved a 2.50 grade-point average on all college course work as well as course work completed at the University of Iowa; and
- applied for admission to a teacher education program.

Honors in Education

The College of Education Honors Opportunities Program is open to juniors and seniors who have attained a 3.50 grade-point average. Students with lower grade-point averages who have demonstrated their research potential may be considered on the basis of an interview with the director. The Honors Opportunities Program consists of three components: 75-100 Honors Seminar in Education, a research mentorship, and a student development program including career counseling and social activities. Successful completion of a research project results in an honors designation on the diploma.

The Student Opportunities Program is housed in and administered by the Center for National Center for Gifted Education.

Graduate or Postbaccalaureate Admission

Students who have completed a baccalaureate degree may be admitted into a teacher preparation program in one of two ways.

- They may apply to the Graduate College with the following conditions: admission to the Graduate College; completion of the Graduate Record Examination (GRE) General Test; a cumulative grade-point average of not less than 2.50 on undergraduate work and 3.00 for M.A./M.Ed. objectives; and admission to a specific certification program (e.g., elementary education, special education, or secondary English).

- They may apply to the College of Liberal Arts as postbaccalaureate students with a certificated plan. Students selecting this option should have completed a baccalaureate degree. Students 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 June 1. Applicants who do not meet the deadline may submit applications by either October 1 or March 1; when qualified, they may be accepted if openings in the program occur.

Application deadlines for postbaccalaureate students with senior standing are the same as those for undergraduates.

Student Teaching

The first phase of the teacher education program is the professional experience, devoted to supervised student teaching and directed observation in a variety of settings. 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. Admissions to the senior year student teaching semester requires application applications. Applications must be submitted by February 15 of the academic year preceding the one during which students are to be admitted. Applicants must be admitted to the College of Education. In addition, candidates and student teaching experiences are available. Admission to student teaching requires program approval as well as verification of satisfactory progress in meeting both College of Education standards and program requirements, which are set at the time of admission to the TEP and are not programs that are higher than the college minimum grade-point average of 2.50.

Students should consult with their advisers regarding specific requirements for the program area.

Waverers

Students who have completed practical type experiences or courses that they want to have considered in lieu of program requirements should consult with their advisers.

Urban Student Teaching

Students who wish to advance their educational experience through student teaching in an urban setting may apply through the Office of Student Field Experiences. Popular settings for student teaching are available through the Cooperative Urban Teacher Education Program. This option is open to all education majors who meet the requirements for student teaching.
Overseas Student Teaching
Overseas student teaching experience is available in cooperation with the University of Wisconsin—River Falls. The overseas sites available include universities in England, Scotland, Wales, and Australia. In most locations, students are assisted with housing by the on-site coordinator. Interested students must meet the regular requirements for student teaching and must have the approval of their adviser and the appropriate program coordinator. Overseas assignments are for seven weeks. Secondary education students in some program areas are required to complete a full semester in a U.S. assignment before student teaching overseas. Elementary education students complete a two-week classroom management course followed by seven weeks in a U.S. assignment and seven weeks overseas during one semester.

State Requirements
All students seeking an Iowa teaching license must complete a course in human relations. This requirement can be met by completing 77,160 Human Relations for the Classroom Teacher.

Teacher Education Minors
Acceptance into a teacher education program is prerequisite to registration for most College of Education undergraduate courses. However, the College of Education does offer four minors for students interested in being better informed about education: general education, science education, human relations, and educational psychology. Registration in these programs is required to prepare to be better informed as parents, as teachers, as citizens, and as consumers of education. There also may help support student future career objectives. Descriptions of the minors are available in the Office of Student Services.

Teacher Licensure/ Certification Services
The Iowa Board of Educational Examiners houses teacher, support service, and administration licensure 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 the 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 study in education register in the Graduate College and receive their degrees from that college. Graduate programs are available in the following areas of study.

- Counselor Education—M.A., Ed.S., Ph.D.
- Counseling and Human Development—M.A., Ed.S., Ph.D.
- Remedial Counseling—M.A., Ph.D.
- Student Development in Experiential Education—M.A., Ed.S., Ph.D.
- Substance Abuse Counseling—M.A., Ph.D.
- Remedial Psychology—Ph.D.
- Marital and Family Therapy—Ph.D.
- Curriculum and Instruction—M.A.T., M.A., M.S., Ed.S., Ph.D.
- Art Education—Ph.D.
- Behavior Disorders—M.A.
- Curriculum and Supervision—M.A., Ph.D.
- Developmental Reading—M.A.
- Early Childhood Education—M.A.
- Early Childhood Special Education—M.A.
- Elementary Education—M.A., Ph.D.
- Elementary Science Education—M.S.
- English Education—M.A.T., M.A., Ph.D.
- Foreign Language Education—M.A.T., M.A.
- Learning Disabilities—M.A.
- Mathematics Education—M.A., Ph.D.
- Mental Retardation, Mild/Moderate—M.A.
- Mental Retardation, Moderate/Severe/ Profound—M.A.
- Multicultural Education—M.A.
- Multicultural Special Class with Immigration—M.A.
- Science Education—M.S., M.A.T., Ed.S., Ph.D.
- Social Studies Education—M.A., Ph.D.
- Special Education—Ed.D., Ph.D.
- Special Education Administration—Ed.S.
- Planning, Policy, and Leadership Studies—M.A., Ed.S., Ph.D.
- Educational Administration—M.A., Ed.S., Ph.D.
- Higher Education—M.A., Ed.S., Ph.D.
- Social Foundations of Education—M.A., Ph.D.
- Psychological and Quantitative Foundations—M.A., Ed.S., Ph.D.
- Counseling Psychology—Ph.D.
- Educational Measurement and Statistics—M.A., Ph.D.
- Educational Psychology—M.A., Ph.D.
- Instructional Design and Technology—M.A., Ed.S., Ph.D.
- School Psychology—Ed.S., Ph.D.

Master of Arts in Teaching
The M.A.T. program is a 42-semester-hour (minimum) nonthesis program designed to provide academically superior liberal arts graduates who completed fewer or no professional education courses in their undergraduate program, Requirements as 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. A grade-point average of at least 3.00 on undergraduate course work is required for admission. At least 18 semester hours of graduate course work in the student's teaching field must be completed. A minimum of 20 semester hours of graduate work in education must be taken to satisfy licensure requirements.

Master of Arts
The College of Education offers a Master of Arts with or without thesis. The nonthesis M.A. program usually provides more specialized course work than does the thesis program. The nonthesis program is currently a terminal program, but students who expect to continue their studies in a doctoral program are urged to select the M.A. thesis program since it offers more experience in research procedures. Students who complete a nonthesis M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their adviser or during during the early part of their doctoral program. Course credits earned more than ten years before the student's degree work begins are not counted toward fulfillment of requirements for the degree. Of the minimum 30 semester hours required for the degree, at least 24 must be earned at University of Iowa courses after formal admission to the program, and at least 6 must be completed on campus.

Master of Science
Thesis and nonthesis programs are available for students in science education. The degree requirements are similar to those for the Master of Arts.

Specialist in Education
This degree is granted upon completion of a prescribed two-year postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration, supervision, and support services. Of the minimum 60 semester hours required for the degree, 28 must be in the area of specialization; the rest may be in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report. Other requirements and regulations for the S.I.S. are the same as for the master's degree, except that 15 semester hours of research work on campus are required in one 12-month period or in two summer sessions, and course work completed ten years prior to the final examination must be evaluated to determine the amount of credit.
of the University's Psychiatric Hospital. Children attending this school are residential patients in the unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teaching and practicum experience in school psychological services.

The University Counseling Service provides research and practicum opportunities for students in counseling psychology and other college programs.

University Hospital School is a University affiliated facility and, as such, it strives to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training activities for personnel, and research in program development and effectiveness.

Financial Aid

Students interested in employment opportunities in any of the support units or special resources listed above should contact the director of each facility and indicate their interest, their academic and experience records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and related employership opportunities. Inquiries should be directed to the chair of the division or department in question. Assistantships paid by student benefactors or the student can provide service or achieve an outstanding academic record. If the student has applied for admission, either paid or the student's file is available for review by those responsible for selecting the assistantship for the student's program. The assistantship appointments are usually, but not always, made by the program area.

Special Graduate Assistantships in Education

The Iowa Testing Programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply, provided they are committed to a professional career in the United States. The assistantships are for the academic year only and are renewable for a limited number of years. Holders are assigned to work under the direction of a faculty member in a research capacity and must be enrolled for not fewer than 6 nor more than 12 semester hours per semester. All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), letters of recommendation, and scores on the Graduate Record Examination (GRE). Research experiences must be filed on a special form available from the director of the Iowa Testing Programs. The application deadline is March 1.

College of Education Student Loan and Scholarship Fund

The college's student loan fund was established to assist College of Education students who are denied with educational loans for attendance while pursuing degree or graduate programs. The loan must be at a senior or postgraduate student seeking teacher certification, a graduate student seeking an advanced degree or license in the College of Education. If not, the student must have completed the equivalent of at least one year of full-time course work at The University of Iowa, have a strong academic record, and demonstrate potential for success in the field of education.

Three scholarships are available for students in the College of Education or the spring semester meeting of the college faculty.

1. The John Edward Elementary Education Award, presented annually to an outstanding elementary education student who has expressed the desire to teach. The student should be asked to do student teaching the academic year following the award.

2. The John Ederer Bell Marriage and Family Therapy Award, presented annually to an outstanding graduate student in marriage and family therapy entering the dissertation phase of the doctoral program.

3. The Blommer-Herremans Fellowship, awarded annually to a doctoral student in the field of educational measurement and statistics. Non-Iowans must complete at least one full year in the graduate program at The University of Iowa. The award is based on academic performance in graduate course work and professional promise in the field of measurement and statistics. The fellowship is intended to supplement the recipient's teaching or research fellowship each year until graduation, to a maximum of three years.

The T. Anne Cleek Psychological Research Scholarship, awarded to an outstanding doctoral student engaged in research on the psychological or quantitative foundations of education. It may be presented to one international student and one permanent resident of the United States each year.

2. The John Leonard Marsh Memorial Award, presented to an outstanding graduate student receiving in education whose specialization is adult and continuing education.

- The Harvey H. Davis Award, presented to an outstanding candidate for an advanced degree in higher education or educational administration, particularly a student interested in the financing of education.

- The Howard H. (Junior Achievement Award, presented to an outstanding graduate student who has made a noteworthy scholarly presentation at a national professional conference or published a significant scholarly article in a reputable professional journal or other scholarly periodical work.

- The Perry Eugene McCormick Award, presented to the outstanding candidate for an advanced degree in educational administration.

- The Leonard A. Miller Memorial Award, presented to an outstanding third-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 made the most outstanding academic performance and promise of the highest level of achievement in research in the field.

- The R. Lambda Theta Award—Senior, M.A., and Ph.D. levels, presented to outstanding students of high scholarship who show promise in the professional areas of research, teaching, or writing and editing research profile.

- The Betty Farcy Scholarship Award, presented annually to an outstanding student in reading who is expected to be the first direct way.

- The J. Arthur Stone International Student Award, presented to an outstanding international student pursuing a Ph.D.

- The James and Conger Staudt Fellowship for Doctoral Study in Educational Psychology, presented annually to an outstanding graduate student in the Division of Psychological and Quantitative Foundations who is entering the dissertation phase of study.

- The Janet R. Zuber Memorial Award, awarded to an outstanding student preparing to teach the physically handicapped, including the hearing impaired.

Faculty

All tenure-track faculty members with substantial professional work experience in their teaching fields, and the majority have had teaching or administrative experience in the public schools. Several hold joint appointments in the College of Liberal Arts.

Interdivisional Courses

75,000 Cooperative Education Internship

Students may combine the 9.5 in the following purposes: internships during which students acquire academic credits that count toward their academic requirements and provide opportunities for students. Undergraduate students with a minimum of 60 semester hours may admitted and complete a minimum of 60 semester hours and pass course work and professional experience supplemented by a written report and a comprehensive examination. Graduate students admitted and complete a minimum of 12 semester hours, pass course work and professional experience supplemented by a written report and a comprehensive examination.
In addition to the above, the following requirements must be met for the individual program:

Master of Arts: A 2.75 minimum undergraduate grade-point average and a composite (verbal and quantitative) GRE General Test score of 1000 or higher.

Doctor of Philosophy: A 3.00 minimum undergraduate grade-point average or a 3.30 minimum graduate grade-point average if a graduate degree has been completed; composite (verbal and quantitative) GRE General Test score of 1100 or higher.

Typically, doctoral students are not admitted unless they have completed a master's degree in counseling or a related field. Relevant work experiences are important. Students who are accepted without a master's degree (including a master's unrelated to counselor education) must complete core master's level coursework before taking doctoral level advanced courses.

Master's level course and experiences to be completed are determined in consultation with the advisor 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 550 is required. Depending on the TOEFL score, the department may require students to take and pass the University of Iowa course work in English usage that is designed especially for them.

Final Examination, Special Requirements
All the criteria listed above are considered minimum standards for the M.A. and Ph.D. graduate programs. The University of Iowa Graduate College sets the minimum academic standards for graduate students. For example, a teaching statement or certificate is required for students pursuing certification in school counseling. Any 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 warrants a conditional status. The following are divisional conditions:

M.A. Level—Students must complete 12 semester hours of core courses approved by an advisor over two consecutive sessions and earn a 3.00 minimum cumulative grade-point average.

Ph.D. Level—Students must complete 12 semester hours of core courses approved by an advisor over two consecutive sessions and earn a 3.00 minimum cumulative grade-point average.

Maintaining Candidacy
All graduate students must meet the following standards in order to maintain their candidacy for degree:

- maintain satisfactory grade-point average in their graduate program (M.A.—3.00; Ph.D.—3.50; M.Ed.—3.00; M.S.—3.00; M.T.—3.00; M.S.W.—3.00)
- successfully complete internship, internship, or equivalent professional experience;
- maintain professional behavior consistent with the American Psychological Association and the Code of Ethics, and any additional code of professional ethics adhered to by any agency in which the student complies with the professional requirements of the agency and is approved by the advisor.
- The academic and professional programs of all students are reviewed annually.

Professional Status
M.A. students who ear a 3.00 grade-point average (or better) may be eligible to apply for a professional status. Students on probationary 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 professional status during his or her program of study.

Application Deadlines
Deadline for M.A. and Ph.D. programs April 1 for the fall semester, November 1 for spring semester. Applications seeking graduate assistantships are urged to complete their applications as soon as possible. The Ph.D. program deadline is January 1 for the fall semester; applications not accepted for the spring semester. Applicants must be complete before they will be reviewed. Applicants are responsible for providing a complete application dossier. Applications for graduate assistantships must be submitted to the Office of Student Services. All students must have admission status before the application can be accepted. Applicants with questions about admission status should contact the office of the Dean of Counseling Education. After admission status is granted, the College of Education Office of Student Services will notify the student.

Applicants are invited to write immediately after admission status has been reviewed. Applicants who are accepted must reply to writing in order to maintain their admission status.
Graduate Programs

Student Development in Postsecondary Education

Master of Arts

The M.A. program provides preparation for college positions in administration, student activities, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counseling, adult and continuing education, and external degree programs. With experience, it is a foundation for positions as master dean and college teachers. The program is accredited by the Council of Accreditation of Counseling and Related Programs (CACREP).

Specialed in Education

The Ed.S. program provides specialized professional preparation to college student development personnel beyond the master’s level for persons not planning to enter doctoral study. It helps to prepare candidates for positions such as associate dean or dean of students in a small college; or as a director 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.

Doctor of Philosophy

The Ph.D. program, accredited by CACREP, provides preparation for positions such as counselor educator, researcher, director of graduate programs, and director of admissions. Students acquire knowledge of counseling, student affairs, 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.

Rehabilitation Counseling

Master of Arts

The M.A. program is accredited by the Council on Rehabilitation Education. It is intended to prepare professionals to provide direct services and coordinate resources for persons with disabilities. Counseling work in many settings helps persons with physical and mental disabilities become more productive, satisfied members of society. Graduates of the program are eligible to take the Certified Rehabilitation Counselor Examination.

Doctor of Philosophy

The Ph.D. program prepares professionals for leadership roles in rehabilitation education, research, administration, and service delivery systems. Students admitted to the program focus on three areas of advanced development: 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.

Ph.D. in Rehabilitation Psychology

The Ph.D. program is designed to meet the needs of students who are primarily interested in working as professionals in traditional and clinical settings and who may be interested in becoming licensed psychologists. It also prepares students for teaching, research, and service in academic, agency, and other institutional settings, both public and private. This program is a designated psychology program of the National Register of Health Service Providers in Psychology.

As with the Ph.D. program in rehabilitation counseling, applicants for rehabilitation psychology will not be considered unless they have at least one year of full-time, paid work experience in the field of rehabilitation following the completion of their M.A. program.

Counseling and Human Development

Licenses/Certificates

Applicants with a master's degree in counseling or a related field, elementary or secondary school teaching license, and at least one year of successful teaching experience may apply for licensure in school counseling. Counseling and human development programs provide for licensure as elementary school counselor (K-6) and secondary school counselor (P-12).

Postsecondary counselor licensure/certification only is available for applicants with master's degree and postsecondary teaching license/certificates.

Master of Arts

The M.A. program, accredited by the Council of Accreditation of Counseling and Related Programs (CACREP), provides preparation for counseling in a school setting.

Specialed in Education

The Ed.S. program enables school counselors and school psychologists to increase their knowledge beyond the master's level.

Doctor of Philosophy

The Ph.D. program, accredited by CACREP, provides preparation for teaching, research, and research positions in counseling and related fields.

Substance Abuse Counseling—M.A.

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, treatment, and supervision for substance-related disfunction. The emphasis is not on individual, group, and family counseling.

Marital and Family Therapy—Ph.D.

This doctoral program is designed to prepare students with knowledge and advanced counseling skills, specifically in the area of marital and family therapy. Graduates are prepared to provide leadership in this field as researchers, teachers, supervisors, and clinicians.

Facilities

A wide variety of counselor education program experiences is available in neighboring community agencies, schools, and colleges, as well as throughout the University.

Financial Aid

Depending on federal and graduate training fellowship availability, opportunities are available for students entering rehabilitation counseling. Many other graduate students in the Division of Counseling 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 graduate education graduate program they plan to enter.

Courses

TC 619: Making a Vocational Educational Choice 2 ahs.

Vocational decision making process, self-evaluations, appraisals of the world of work, for students who are unable without their educational and vocational direction, 3a.

TC 612: Marriage and the Family 3 ahs.

Psychorial and social aspects of human sexuality. Same as PSY 412; 612.

TC 615: Grief and Young Adult 1 ahs.

Identification and treatment of emotional grief. Same as PSY 615; same for education, counseling, and social work with older adults 55 years of older persons; same as PSY 415.

TC 619: Family Living and Childrearing 3 ahs.

How to design and raise the proper environment, what role or more children are treated as girls, boys in college, potential relationships, 619.

TC 620: Psychology of Creativity 3 ahs.

Theories of testing, skill development, motivation, career counseling in the visual arts education. Same as PSY 620.

TC 631: Assessment of Children and Adolescent 3 ahs.

Interpretation of standardized tests and other measurement instruments used to identify academic and psychological problems; current issues in the area of various assistance. Same as PSY 631.
progress to ensure that the student is qualified for placement in the program. Verification that the student meets the grade-point standards established by their program and the time of admission to the TEP occurs at the time of application for student teaching. Students should contact their education advisor or the Division of Curriculum and Instruction office for more information about the admission process and requirements for students teaching in their license program.

**Elementary Education**

**FOUNDER COMPETENCIES**

These three courses must be completed before any methods courses are begun.

7E:91 Pre-Professional Practices, Elementary Education 5 s.h.
7E:100 Introduction: Elementary and Early Childhood Teaching 3 s.h.
7E:75 Educational Psychology and Measurement 3 s.h.

These two courses should be completed before methods courses are begun, but may be completed during the first semester of methods courses.

7W:91 Auditory/Visual Equipment for Instructors 1 s.h.
7W:92 Introduction to Microcomputing for Teachers 1 s.h.
Total 10 s.h.

**METHODS COURSES**

These courses taken concurrently:

7E:123 Literature for Children I 2 s.h.
7E:160 Methods: Elementary School Language Arts 3 s.h.
7E:164 Methods: Elementary School Mathematics 3 s.h.
Four courses taken concurrently:

7E:161 Methods: Elementary School Social Studies 2 s.h.
7E:162 Methods: Elementary School Science 2 s.h.
7E:163 Methods: Elementary School Mathematics 2 s.h.
7E:166 Methods: Elementary School Mathematics and Science 1 s.h.

7E:120 Methods and Materials: Music for the Classroom Teacher 2 s.h.
7E:122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
7E:127 Methods and Materials: Physical Education for the Elementary Teacher 2 s.h.
or
7E:126 Methods and Materials: Health Education for the Elementary Teacher 2 s.h.
Total 19 s.h.

**GEReral REQUIREMENTS**

7E:110 Exceptional Persons 3 s.h.
7E:90 Human Relations for the Classroom Teacher 3 s.h.

**AERA OF SPECIALIZATION**

A minimum of 24 semester hour credit must be completed in one of the following areas of specialization: art, early childhood, English language arts, English as a second language (ESL), foreign language, health, history, mathematics, music, physical education, reading, social studies, 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/fail as long as they are offered with the pass/fail option. Courses in some areas of specialization are sequenced in a defined pattern leading up to student teaching; others have no required sequence and may be completed before or after student teaching.

**STUDENT TEACHING**

7E:170 Classroom Management 2 s.h.
7E:190 Supervised Teaching in the Elementary School: Interactive Phase 9.5 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 0.5 s.h.
Total 16 s.h.

Transfer students must complete at least eight semester hours of course work, including two courses numbered 7E:160-7E:164 or 7E:123 at The University of Iowa prior to student teaching. A minimum of 14 semester hours of student teaching is required.

The liberal arts and elementary requirements must approximately 14 semester hours. Students who meet the test out of the elective, foreign language, mathematics, and other liberal arts General Education Requirements may be able to satisfy their program requirements in as few as 11 semester hours.

**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 24-hour endorsement, students may complete requirements for the loads prekindergarten/kindergarten endorsement or as an (1540) area endorsement. (Area of Specialization) above. For example, students seeking the prekindergarten/kindergarten endorsement must complete the elementary major, the early childhood specialization, and the following additional courses:

7E:120 Methods and Materials: Music for the Classroom Teacher 2 s.h.
7E:122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
7E:134 Parent Teacher Communication 3 s.h.
7E:139 Science and Expository of Early Childhood Education 3 s.h.
7E:142 Early Childhood Development and Administration of Child Care Centers 3 s.h.
7E:197-198 Supervised Teaching: Pre- and Post-Active Phase 7, 14 s.h.
* Either 7E:120 or 7E:122 may be taken as part of the elementary major.

Students seeking teacher education endorsement in other areas must assume the responsibility of determining what additional requirements have to be met. Addresses for other state license/certification offices are available in the College of Education’s Office of Student Services.

**Secondary Education**

Undergraduate students seeking secondary school license/certification are degree candidates in the College of Liberal Arts and must complete the requirements for the Bachelor of Arts, Bachelor of Science, Bachelor of Music, or Bachelor of General Studies as described in the College of Liberal Arts section of the Catalog. Graduate students may be admitted to a program leading to teacher license/certification as “certification only” candidates in the Graduate College. They are subject to all polices, 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. License/certification requires a major of at least 30 semester hours of course work in a subject area taken in the secondary school. Course requirements for each major are available in the Division of Curriculum and Instruction. Candidates for secondary school teaching license/certification also may receive approval to teach as additional subject areas by completing an approved additional subject course of 24 or more semester hours of course work in those areas.

Secondary school teacher preparation programs are provided in the following areas:

- **Art**
  - **Counseling**
  - **Communication**
  - **English**
  - **Foreign languages**
  - **French, German, Italian**
  - **History**
  - **International**
  - **Japanese**
  - **Music**
  - **Physical education**
  - **Spanish**
  - **Science**
  - **Social studies**
  - **Technology**
  - **World languages**

**Area Sarow**

- **English education**
- **Foreign language education**
- **Science education**
- **World languages education**

License/certification requires a major of at least 30 semester hours of course work in a subject area taken in the secondary school. Course requirements for each major are available in the Division of Curriculum and Instruction. Candidates for secondary school teaching license/certification also may receive approval to teach as additional subject areas by completing an approved additional subject course of 24 or more semester hours of course work in those areas.

Secondary school teacher preparation programs are provided in the following areas:

- **Art**
  - **Counseling**
  - **Communication**
  - **English**
  - **Foreign languages**
  - **French, German, Italian**
  - **History**
  - **International**
  - **Japanese**
  - **Music**
  - **Physical education**
  - **Spanish**
  - **Science**
  - **Social studies**
  - **Technology**
  - **World languages**

**Area Sarow**

- **English education**
- **Foreign language education**
- **Science education**
- **World languages education**
prepares them for both elementary and secondary teacher certification.

Secondary teacher preparation programs in several other subject areas also offer a program that leads to the license/certification as a subject matter specialist in grades 6-8. This K-8 license/certification is available only if the same subject area is the secondary certification. Mathematics and science education require completion of the elementary specialist license/certification. Completion of the elementary specialist license/certification is highly recommended for foreign language education.

Candidates are encouraged to obtain more information and the name of an advisor from the Division of Curriculum and Instruction office.

REQUIREMENTS

Undergraduates candidates for license/certification to teach in secondary schools must complete the following requirements, in addition to the requirements in their major:

One course from 75-607:99 Introduction to Teaching (a specific subject area, except science education) 2.5 s.h.
79-100: Intro to Education 3 s.h.
79-75: Educational Psychology and Measurement 3 s.h.
79-100: Human Skills for the Classroom Teacher 3 s.h.

Competency in methods of teaching courses in the major field 3-9 s.h.
Competency in computer-based education (CBE) 0-1 s.h.
Math course must be selected by taking WF-92: Introduction to Microcomputing for Teachers, by examination, or by completing a CBE course or module in the subject area

Student Teaching 12 s.h.

With an advisor’s approval, a graduate student may elect equivalent graduate courses in lieu of 75-607:99, 79-100, 79-75, and 79-102. Students must complete the methods courses in their 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 in the Center for Urban Teacher Education (CUTE), through the Regents’ Exchange Program, or in the customary contractual area established by the College of Education. An exception to student teaching in the customary contractual area will be considered only if the proposed student teaching site provides the student with a specific program opportunity not available in the customary contractual area.

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 applicable specializations is available from the Office of Student Services.

Applications for student teaching must be filed in the Office of Student Services by February 15 prior to the academic year during which the student teaching will be done.

Special Education

Students may be admitted to the Graduate College for the purpose of obtaining one or more teaching license/certificates in special education. For course requirements, see specific programs listed for the Master of Arts under “Special Education” in this section of the Catalog. Also see admission requirements under “Special Education.”

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 practices, and some involve teaching sections of undergraduate methods courses and supervising teaching students. 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 supervising undergraduate courses or supervising practicum experiences, and others are involved in planning research activities.

Secondary education graduate students also may be eligible for assistantships in some College of Liberal Arts departments. A condition with some departments would apply to the specific department or college. The College of Education also awards the programs in the appropriate field.

Teaching in selected license/certification and master’s degree programs are available to full-time special education students. The Jeanne Eller Memorial “Action Stipend” is available each year to one student who is pursuing a special education teaching license. Preference is given to students working toward licensure in physical disabilities.

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 prekindergarten programs, child care centers, or comprehensive or community college institutions. 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/intergere 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 evaluation 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 38 hours.

FOUNDER’S COURSES

76:110 History and Philosophy of Early Childhood Education 3 s.h.
79:114 Development and Administration of Child Care Centers 3 s.h.
79:254 Building Foundations for Child Care or course in early childhood 3 s.h.
76:247 Curriculum Development in Early Childhood (5-8 Years) 3 s.h.
76:248 Curriculum Development in Early Childhood (5-15 Years) 3 s.h.
Total 15 s.h.

RELATED COURSES

One of these (or an approved substitute): 79:200 Advanced Child Development 3 s.h.
31:114 Cognitive Development of Children 3 s.h.
One of these: 76:114 Parent-Child Relationships 3 s.h.
76:114 Parent-Child Communication 3 s.h.
PPS 313 Consultation Theory and Practice 2.5 s.h.
Total 9 s.h.

AREAS OF SPECIALIZATION

Curriculum

Students must complete at least 11 semester hours of credit in courses chosen from one or
two content areas such as reading and/or language arts, mathematics, science, social studies, music, art, children's literature.

Human Relationships
Four of these:
7E:130 Exceptional Persons 3 s.h.
7E:144 Parent-Child Relationships 3 s.h.
7E:134 Parent-Teacher Communication 3 s.h.
7E:280 Supervision of Instruction and Staff Development 3 s.h.
7E:263 Consultation Theory and Practice 3 s.h.
Total 10-12 s.h.

Community College Teaching
All of the following must be completed for the endorsement to secondary certification for Arts and Sciences.
7E:112 Teaching of Adults 3 s.h.
7E:171 The Community College 2 s.h.
7E:175 Pre-High School Staff Development Workshop 0-2 s.h.
7E:192 Curriculum Development in Community College and Health Careers 3 s.h.
7E:270 Intern Seminar 1-3 s.h.
7E:390 College Teaching Internship 3 s.h.
7E:130 Introduction to Educational Measurement 3-4 s.h.

Counseling
7C:162 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.
7C:118 Microcounseling 1-3 s.h.
7C:190 Group Process for Related Professions 3 s.h.
7C:222 Interventions for Primary Prevention in the Schools 3 s.h.
7E:263 Consultation Theory and Practice 3-4 s.h.
Total 12-15 s.h.

Social Work
42145 Organization and Community Practice 3 s.h.
42110 Family Violence 3 s.h.
42210 Family Law 3 s.h.
42245 Social Policy and Interdisciplinary Issues, Domestic and International 3 s.h.
Total 12 s.h.

Thesis/Research
7F:114 Introduction to Statistical Methods 3 s.h.
7F:150 Introduction to Educational Measurement 4 s.h.
7F:392 Field Service Project 3 s.h.
7E:393 M.A. Thesis in Early Childhood and Elementary Education 2 s.h.
Total 9-10 s.h.

COMPREHENSIVE EXAMINATION
All students take one written examination in each of the four content areas of specialization. All students take a second written examination in the area elected area of specialization. Thesis students take a second, oral examination related to their thesis or field-service project.

Elementary Education
Master of Arts
This program is designed to prepare master's degree candidates in elementary education to serve as team leaders, grade level or subject area supervisors, curriculum consultants, or master teachers.

ADMISSION
Admission requirements are the same as those established by the Graduate College. In addition, applicants must have completed an undergraduate program of teacher preparation in either early childhood or elementary education. Graduate students who have not completed an undergraduate program in elementary education must be admitted initially as "certification only" students.

REQUIREMENTS
The thesis option requires 30 semester hours of credit, the nonthesis option 32. All courses must be taken in residence. At least 8 semester hours must be taken on the Urbana-Champaign campus. Requirements must be completed within five years before admittance is closed. No examinations will be given toward this degree.

Foundations and Educational Psychology
Two of these (4-7 s.h.):
7E:100 History of American Education 2 s.h.
7E:117 Philosophies of Education 3-5 s.h.
7E:130 Educational Sociology 3 s.h.
7E:131 Educational Psychology 3 s.h.
7F:142 Introduction to Statistics, Methods 3 s.h.
7A:150 Introduction to Educational Measurement 3-4 s.h.
7E:143 Introduction to Theories of Learning 3 s.h.
7E:120 Introduction to Instructional Design and Technology 3 s.h.

Research and Curriculum
Both of these (9 s.h.):
7E:120 Design and Organization of Curriculums 3 s.h.
7E:304 Seminar: Current Issues and Research in Elementary Education 3 s.h.
Instructional Improvement
Three of these (6-9 s.h.):
7E:242 Literature for Children II 3 s.h.
7E:220 Supervision of Elementary School Language Arts 3 s.h.
7E:243 Supervision of Elementary School Social Studies 3 s.h.
7E:265 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.

7E:263 Supervision of Elementary School Mathematics 2-3 s.h.
7E:264 Building Foundations for Reading: Preliminary and Primary 3 s.h.
7E:265 Supervision of Intermediate School Social Studies 3 s.h.
7E:267 Curriculum Development in Early Childhood (5-9 Years) 3 s.h.
7E:268 Curriculum Development in Early Childhood (9-3 Years) 3 s.h.
7E:280 Supervision of Instruction and Staff Development 2-3 s.h.

Area of Specialization
A minimum of 15 semester hours of credit in courses chosen with consent of the advisor may include appropriate courses listed above.

Electives
From 0-9 semester hours of credit in courses chosen with consent of the advisor.

Thesis
7E:293 M.A. Thesis in Early Childhood and Elementary Education 2-3 s.h.

COMPREHENSIVE EXAMINATIONS
The comprehensive examination consists of two 3-hour examinations. One 3-hour section is based on the general field of elementary education, the second 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 course work required develops the skills, knowledge, and competencies needed for supervision, curriculum, and remedial teaching positions in reading. The program also builds a background in reading education for students who wish to specialize further in this 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 students for certification as a reading specialist.

ADMISSION
Students must meet the general requirements of the Graduate College, have at least a 3.00 undergraduate grade-point average, hold an early childhood, elementary, or secondary school teaching certificate, and show evidence of completing two years of a successful teaching experience.

REQUIREMENTS
A minimum of 33 semester hours is required. The following courses are required of all candidates.
7F:110 Introduction to the Psychology of Reading 3 s.h.
7E:264 Building Foundations for Reading: Preliminary and Primary 3 s.h.
76.245 Supervision of Intermediate Credit Reading 2 s.h.
76.271 Advanced Reading Clinic Techniques 2 s.h.
76.272 Advanced Reading Clinic Practicum 2 s.h.
One of these:
75.194 Methods: High School Reading 3 s.h.
75.195 Developing Reading Skills in the Secondary School 2 s.h.
One of these:
77.159 Introduction to Educational Measurement 2 s.h.
77.174 Diagnostic and Prescriptive Approaches to Reading Instruction 1 s.h.
75.264 Seminar: Secondary Reading 3 s.h.
76.308 Seminar: Research and Current Issues (Reading) 3 s.h.
One of these:
72.106 Child Development 3 s.h.
72.111 Educational Psychology 3 s.h.
72.133 The Adolescent and Young Adult 3 s.h.
One of these:
72.186 Curriculum Foundations 3 s.h.
72.291 Secondary School Curriculum 3 s.h.
72.300 Design and Organization of Curriculum 3 s.h.
72.208 Inquiry-Instruction in the Secondary School 3 s.h.
One of these:
72.206 Supervision of Instruction and Staff Development 2 s.h.
72.305 Reading Clinic: Supervision 3 s.h.
72.340 Supervision and Evaluation 3 s.h.
Thesis (if required), one of these:
72.590 Master's Thesis in Early Childhood and Elementary Education 3 s.h.
73.701 Master's Degree Thesis

M.S. in Elementary School Education
The Master of Science program in elementary science prepares master's degree candidates to serve as team, department, or department science specialists. The program may be taken with their 30 semester-hour minimum or without a 30-semester-hour minimum.

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 are required of all candidates:
75.255 Science Education: Issues, History, and Rationale 3 s.h.
75.256 Science Education: The Nature of Science 3 s.h.
75.257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
72.362 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
Science courses (18 semester hours) are selected by the candidate in consultation with the advisor. A series of application courses (79-103 Societal and Educational Applications of Earth and Environmental Sciences, 97-103 Societal and Educational Applications of Life Sciences, and 97-103 Societal and Educational Applications of Physical Sciences) are integral components of the science courses. Candidates who have not taken comparable courses are expected to take two application courses. At least one corresponding science discipline course as a pre- or co-requirement is to be taken with the application courses. These courses, along with the electives (to 18 semester hours), are determined in consultation with the advisor. 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 60 semester hours of course work and credit for the dissertation. Each student prepares an individual plan of study in consultation with the advisor. The final plan must be approved by the advisor and the degree committee.

The doctoral program should include a strong background of elementary education coursework. Each graduate student must include two areas of concentration. One area must be in elementary education... (continued on the following page)
Thesis, either a written or studio thesis (If a studio thesis is elected, the student must pass M.A. clearance in the School of Art and Art History.)

Comprehensive examinations: a written and/or oral examination in art education (Students may elect a three hour examination or a one week research question.)

Ph.D. in Art Education

The doctoral degree program is administered by the College of Education with the cooperation of the School of Art and Art History. Students make application for admission to the College of Education.

The program prepares college teachers and researchers in art education and supervisors in art to assume leadership positions in education and school systems. It also provides students with an opportunity to continue creative and scholarly work in art history and in studio.

ADMISSION

Students must meet the general requirements for doctoral students to the Graduate College and have a 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 page 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 some work deficiencies, students must register for pertinent courses. One year of successful teaching experience in an elementary or secondary art program is also required.

REQUIREMENTS

Students must complete at least 60 semester hours of graduate work beyond the M.A., including 15 semester hours in the School of Art and Art History, 15 semester hours in art education, 15 semester hours in a related area in fine arts, art history, architecture, anthropology, philosophy of education, psychology, and 15 semester hours in thesis and culminating project. 75.206 Theorizing 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 propose a dissertation proposal and defend it before the dissertation committee. An oral examination on the dissertation is the Ph.D. final examination.

M.A. in Communication Studies

Education

The program prepares teachers and supervisors of speech communication for secondary and postsecondary positions.

Admission

Candidates must have a 2.75 grade point average. Candidates without prior academic background in speech communication may need to take additional courses beyond the minimum requirement. Application should be made to the Department of Communication Studies.

REQUIREMENTS

A minimum of 30 semester hours of approved graduate courses, at least 24 of them in The University of Iowa, as follows:

Two communication studies graduate courses or 6-credit hours 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 internship to research

Three 200 or 300 level courses in communication studies

Other courses recommended by the advisor and/or committee

Successful completion of a paper or project involving substantive scholarly investigation and writing, usually done in a seminar or independently under the direction of an advisor.

The project or paper must be circulated to the committee with the comprehensive examination.

A comprehensive examination consisting of 3 two-hour segments to be defined and limited by the student and an advisor 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 curricular development.

ADMISSION

Students must meet the general requirements of the Graduate College. Teaching experience is desirable.

REQUIREMENTS

Common Core (10-20 s.h.):

7S:186 Curriculum Foundations 2.5-3.5 s.h.
7S:137 Ethnography of Education (or equivalent) 2.5 s.h.
7S:257 Educational Measurement and Evaluation 3 s.h.
7S:259 Construction and Use of Evaluation Instruments 3 s.h.

2.5 s.h. introduction to Evaluation Measurement

7S:281 Junior High School and Middle School Curry-wrth 3 s.h.

7S:291 Secondary School Curriculum 3 s.h.
7S:300 Design and Organization of Curriculum 3 s.h.

Research tool, selected in consultation with the adviser, typically 7S:143 Introduction to Statistical Methods 3 s.h.

Cognates, in a subject field such as English 4-6 s.h.

Electives—selected in consultation with adviser 4-6 s.h.

Thesis, for student electing a thesis program 2.5-4 s.h.

7S:302 Master's Degree Thesis 30.32 s.h.

Two 3-hour comprehensive examinations, one in curriculum and one in a minor field in education or in a cognate field, or three 2-hour examinations.

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/certification, and have at least two years of teaching experience. Applicants must be approved for admission by a faculty review committee. Only 3 s.h.

REQUIREMENTS

A minimum total of 90 semester hours, including other approved graduate course work, is required.

Common Core (30-42 s.h.):

7S:186 Curriculum Foundations 2-3 s.h.
7S:281 Junior High School and Middle School Curriculum 3 s.h.
7S:291 Secondary School Curriculum 3 s.h.
7S:300 Design and Organization of Curriculum 3 s.h.
7S:391 Problems of Curriculum Planning 3 s.h.

At least 12 advanced supervision courses in secondary or elementary school administrative fields 6 s.h.

7S:257 Educational Measurement and Evaluation 3 s.h.

or 7S:259 Construction and Use of Evaluation Instruments 3 s.h.

or 7S:500 (double-count to Educational Measurement) 3 s.h.

7S:294 Individual Instruction in Secondary Education (Practicum) 2-3 s.h.

A minimum of two research tools, typically statistics, research design, or foreign language, 9-11 s.h.

Electives, to be chosen in consultation with adviser 6-8 s.h.

Recommended electives include: 2 s.h.

7S:177 Philosophies of Education
REQUIREMENTS

Students must complete a minimum of 40 semester hours. This includes at least 18 semester hours of graduate courses offered by the Department of English, planned with the adviser to supplement the undergraduate major; and the following professional education courses:

75:113 Educational Psychology 3 s.h.
75:117 History of Western Education 3 s.h.
75:117 Philosophies of Education 2-3 s.h.
75:190 Individual Projects in Laboratory Practice 3-4 s.h.
75:194 Methods: High School Reading 3 s.h.
75:195 Developing Reading Skills in the Secondary School 3 s.h.
75:196 Human Relations for the Classroom Teacher 3 s.h.
75:194 Methods: High School Reading 3 s.h.
75:195 Developing Reading Skills in the Secondary School 3 s.h.
75:115 Methods: English 3 s.h.
75:187 Seminar: Curriculum and Student Teaching 2 s.h.
75:191/192 Observation and Laboratory Practice in the Secondary School 12 s.h.

A two-semester comprehensive examination is required. One part covers methods, materials, and curriculum for high school English; the second part covers one-half of the comprehensive examinations administered to Master of Arts (Literary Studies) candidates in the Department of English.

Ph.D. in English Education

This program is administered by the College of Education. It prepares teacher educators and scholars in English education, with specializations in a range of areas related to literacy and literacy education. These include the teaching of reading, writing, language, and literature.

ADMISSION

Students must meet the basic requirements of the Graduate College for admission to the doctoral program and must provide a written personal statement explaining their reasons for applying to the program. Successful applicants will most likely have a 3.0 grade-point average, score at least at the 50th percentile on the verbal portion of the Graduate Record Examination (GRE) General Test, and have at least two years of teaching experience, preferably at the secondary level. Students must maintain a 3.0 grade-point average while enrolled in the program. Candidate is renewable annually.

REQUIREMENTS

A minimum of 72 semester hours is required. This includes 9-10 semester hours in the area of specialization—teaching of English—including two of the following courses:

75:200 Supervision of Elementary School Language Arts (Language Arts) 3 s.h.
87:308 Seminar: Research and Methodology in English 3 s.h.
87:315 M.A. Seminar: English Education (required for two or more registrations) 2.4 s.h.

Cognates and electives (56-50 s.h.) may include reading, school curriculum, literature for young people, literature of a particular period or genre, educational psychology, special education, educational media, writing, linguistics, literary criticism, educational measurement, journalism, and dramatic arts. Students and their advisers select two areas of specialization in addition to the teaching of English. Areas of specialization typically consist of at least a minimum of 9 semester hours of work in an area.

Students must have facility in a research tool that will help them achieve professional objectives. Choice of research tool is agreed upon by students and their advisers.

Students must take comprehensive examinations in three areas: the teaching of English, a cognate area, and an elective area. The minimal requirement for eligibility to write cognate or elective area examinations varies; the general requirement is four semester hours in the area. Students write a dissertation (typically 12 semester hours).

M.A.T. in Foreign Language Education

The M.A.T. program in foreign language education is designed for superior liberal arts graduates who have had few or no professional education courses. Successful completion of the program leads to secondary school teacher licensure.

ADMISSION

A bachelor's degree with a major in a foreign language and a 3.00 undergraduate grade-point average are required.

REQUIREMENTS

Students must complete at least 18 semester hours of graduate courses in a foreign language department and complete professional education courses.

75:02 Introduction to Teaching Foreign Language (credit not applicable to M.A.T. degree) 3 s.h.
75:113 Educational Psychology 3 s.h.
75:117 History of Western Education 3 s.h.
75:117 Philosophies of Education 2 s.h.
13:123 Topics in Foreign Language Instructional Technology 3 s.h.
75:116 Methods: Foreign Language 3 s.h.
75:187 Seminar: Curriculum and Student Teaching 3 s.h.
75:191/192 Observation and Laboratory Practice in the Secondary School 12 s.h.
75:180 Human Relations for the Classroom Teacher 3 s.h.

A comprehensive examination covering the candidate's knowledge of and proficiency in the language, literary, or cultural analysis, and foreign language education.
Pursuit 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:141 Intermediate Differential Equations 3 s.h.
22M:144 Introduction to Partial Differential Equations I 2.25 s.h.
22M:179 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 courses in mathematics education:
Comprehensive examination of 3 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 educators, 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 prior to admission may be applied. 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 a related field; a 3.0 grade-point average or above; and, except in unusual circumstances, a current teaching license/certificate and a minimum of two years of teaching experience.

REQUIREMENTS
Students must complete a minimum of 36 semester hours of graduate work in the Division of Mathematics Science (mathematics, statistics, and computer science) including the master’s level core requirements for pure or applied mathematics described under “M.S. Program in Mathematics.” In addition, students must complete a minimum of 9 additional semester hours of course work in mathematics at The University of Iowa, matched, with the approval of the advisor. Also required are at least five courses in mathematics education, which must include 22M:235 Current Issues in Mathematics Education and a minimum of two registrations in 72M:235 Seminar: Mathematics Education.

Students concentrate in two additional comprehensive examination areas in either the mathematics sciences or education. A minimum of three courses usually are required for a comprehensive examination area, but the candidate should consult with appropriate faculty members to determine which courses they should take in order to adequately prepare for the examinations.

Two courses in educational statistics are required as preparation for research. The statistics requirement usually is met by taking 72M:260 or 72M:360-361, Introduction to Statistical Methods and Experimental Design.

Students must demonstrate competence in a foreign language.

Students must complete a total of at least 24 semester hours in College of Education courses; this includes the course work listed above, but does not include dissertation credit. An additional 10 semester hours of dissertation credit (75:495) is required.

At the completion of the program, the student must have a 3.00 cumulative grade-point average or above on all graduate work in mathematics, at University of Iowa, graduate work in mathematics, at University of Iowa, and graduate work in mathematics, at University of Iowa.

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. They also complete a dissertation on a research problem in mathematics education. A program topic and format must be approved by the dissertation committee prior to undertaking the study. Upon completion of the dissertation, an oral examination is conducted in defense of the dissertation.

M.L. in Music Education
The program provides students with deeper understanding of the theory and practice of music education, and the role of music in the school curriculum. The degree program may be taken with these 15-semester hour minimums (30 semester-hour maximum).

ADMISSION
The applicant must be a licensed/certified music teacher or in the process of completing a music education/licensure/certification requirements. A 2.50 undergraduate grade-point average, excluding grades in examinations, is required for admission to regular status.

The program is administered by the School of Music in cooperation with the College of Education. Application is made to School of Music.

REQUIREMENTS
General:
22M:115 Introduction to Graduate Study in Music 2 s.h.
The program is administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

REQUIREMENTS
The Ph.D. is granted on the basis of achievement, as determined by course grades, personal and committee 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 (11 s.h.):
25,340 Introduction to Contemporary Analysis and Theory 3 s.h.
25,265 Musical Acoustics 3 s.h.
25,254 Introduction to Graduate Study in Music 3 s.h.
25,264 Curriculum Development in Music Education 2 s.h.
25,304 Foundations of Music Education 2 s.h.
25,324 Introduction to Advanced History and Literature of Music I 3 s.h.
25,352 Advanced History and Literature of Music II 3 s.h.
25,252 Elective (25,203-25,219) 3 s.h.
Elective 4 s.h.
Applied and Ensembles 4 s.h.
Examinations 4 s.h.
Electives (3 s.h.):
25,141 Musicology and Ethnomusicology 3 s.h.
25,240 Curriculum Development in Music Education 2 s.h.
25,254 Foundations of Music Education 2 s.h.
25,256 Comprehensive Examination in Music Education 3 s.h.
25,312 Supervision and Administration in Music Education 2 s.h.
25,445 Social and Psychological Factors in Music Education 3 s.h.
Electives 3 s.h.
Electives (3 s.h.):
25,240 Instrumental Applications of Statistical Techniques 3 s.h.
25,242 Research in Electrical Engineering 2 s.h.
*At least 2 s.h. in Graduate 600 or above level courses.

The program is administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.
Science Core
97-128 Meaning of Science 2 s.h.
97-130 Science in Historical Perspective 2 s.h.
97-131 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97-132 101 Societal and Educational Applications of Biological Sciences 3 s.h.
97-135 Societal and Educational Applications of Physical Sciences 3 s.h.
97-140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
Science electives 11 s.h.

M.S. in Science Education
This degree is designed for students who want to pursue advanced science education specialization in teaching (undergraduate through college) or its related fields such as medical education, museum programs, and instructional editing. It is offered with or without thesis.
The program is administered by the College of Education.

ADMISSION
Candidates must have a 2.50 undergraduate grade-point average and usually must have an undergraduate degree in one of the sciences or in science education. Applicants must have teaching licensure/qualification unless they are preparing for careers in hired service, museums, or community college.

REQUIREMENTS
A total of 32 semester hours of course work with thesis or 34 semester hours without thesis, distributed as follows:
Science Education (9 s.h.):
75-275 Science Education: Issues, History, and Rationale 3 s.h.
75-276 Science Education and the Nation 3 s.h.
75-277 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
76-202 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
75-258 Science Education Research Methods and Conceptual Schemes 3 s.h.
75-320 Seminar: Science Education 6 s.h.
Science Specialization (17-22 s.h.):
97-128 Meaning of Science 2 s.h.
Science and applied science courses selected from an area other than the specialization 3-6 s.h.

Students take a comprehensive examination that consists of two parts: one dealing with science education, the other with the science specialization area.

Ph.D. in Science Education
This degree is appropriate for qualified candidates who apply to college and university positions in science education, major supervisory posts in national, state, and local systems; teaching positions in the sciences at junior liberal arts colleges; positions as instructors of general education science courses and areas or major colleges; positions as research directors in science education; and positions in medical education.
The program is administered by the College of Education.

ADMISSION
Candidates must meet the minimum admission standards of the Graduate College. Usually applicants must have completed a master's degree in one of the sciences or science education and have earned a 3.00 grade point average on all graduate work taken prior to making the application.

REQUIREMENTS
A minimum of 102 semester hours of course work, which must include the courses listed below; courses taken toward a master's degree count toward this total.
76-255 Science Education: Issues, History, and Rationale 3 s.h.
75-275 Science Education and the Nation 3 s.h.
75-277 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
75-258 Science Education Research Methods and Conceptual Schemes 3 s.h.
75-320 Seminar: Science Education 6 s.h.
75-325 Ph.D. Internship (taken for a total of 9 s.h.) 3 s.h.
Electives in consultation with advisor 27 s.h.
Total 30 s.h.

*May be repeated.
Candidates must complete 28 semester hours of course work in the major area of study: biological science, physical science, and environmental studies.
They also complete 8 semester hours in an integrated group of supporting courses selected from a limited number of areas such as education, applied science, science, and history/philosophy of science, in consultation with the advisor.
Candidates must demonstrate competency in two of the following research tools: statistics, computer programming and/or data processing research design (completion of a full study). Competency is certified by the advisor.
Candidates for the degree usually are expected to participate in the teaching and research function of the science education program throughout their residence.
Candidates complete 10 semester hours of dissertation credit (75-275). The comprehensive examination consists of three parts: one dealing with science education, another with an area of science, and a third with the comprehensive studies area.
A.L. In Social Studies Education

The program provides an opportunity for students to major in history, social science, or related areas for general teachers, high school department chairs, and superintendents, as well as others interested in acquiring greater competence in history and the social sciences and greater proficiency in teaching and supervision.

Students may choose from two programs in social studies education. Program A provides an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers or others interested in acquiring greater competence in their selected major area. Program B is for individuals who have their bachelor's degree in history or social sciences and wish to obtain a teaching license/certificate in the process of completing the master's degree.

ADMISSION

Applicants must have a bachelor's degree in history or one of the other social sciences from an accredited institution, a 3.00 cumulative grade-point average; a 3.50 grade-point average in history and/or other social science coursework; preferred cumulative Graduate Record Examination (GRE) General Test score of 2,000 on the verbal and quantitative portions; and two letters of recommendation. Evidence of writing ability in the form of a composed essay 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. requires one an commitment at least a 3.00 grade-point average.

PROGRAM A REQUIREMENTS

Program A students must complete a minimum of 36 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. None of the total 36 semester hours must be credited of 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 dissertation project in history or social sciences, or in related areas, in which case the thesis director is a member of the appropriate department or an investigative problem in social studies education, in which case the thesis director is a faculty member in the College of Education.

A two-hour written examination is required in each of the three fields selected for concentration. An oral examination follows the written examination, conducted by the candidate's committee as a whole.

PROGRAM B REQUIREMENTS

Program B students must complete a total of 38-40 semester hours, consisting of the courses listed below. All of the following courses must be completed, but students may elect to take some of the course work in the program of concentrated 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 should take appropriate work for meeting all Iowa Department of Education requirements for license/certification.

Professional Education Courses:
72:100 Issues in Education 2 s.h.
72:175 Methods: Social Studies 3 s.h.
72:131 Educational Psychology 3 s.h.
72:180 Human Relations for the Classroom Teacher 3 s.h.
72:190 Introduction to Instructional Design and Technology 3 s.h.
72:187 Philosophies of Education or
71:130 Educational Sociology 3 s.h.
72:195 Observation and Laboratory Practice in the Secondary School 6 s.h.
72:196 Observation and Laboratory Practice in the Secondary School 6 s.h.
72:277 seminar: Social Studies Education 3 s.h.

Candidates also are required to register for a practicum in a public school.

Subject Area Specialization Courses: A minimum of 15 semester hours of course work in history or a social science is required, 10 of which will be taken in one area of history or one of the social sciences. Two courses should be taken with the instructor who will serve on the examining committee.

Five semester hours of course work may be taken in a second area of history or in another social science. The course must be selected in consultation with the advisor.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three parts: a two-hour research 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 provides the Ph.D. degree in 200 or above.

A two-hour written examination is required in each of the three fields selected for concentration. An oral examination follows the written examination, conducted by the candidate's committee as a whole.

SPECIAL EDUCATION

The division offers special education programs in three primary areas: mental retardation, learning disabilities; behavior disorders; early childhood special education; and moderate, severe, and profoundly mentally disabled. These programs are designed to prepare graduates for positions in public schools, special education agencies, clinical settings, and institutions of higher education. All teacher license/certification programs are approved by the Iowa Department of Education. Programs leading to special education certificates are not available to undergraduates.

Admission to some programs in special education are encouraged to contact the
Admission

Admission requirements include:
- completed graduate application form;
- copies of official transcripts for all previous college course work;
- official report of the Graduate Record Examination (GRE) General Test (verbal and quantitative);
- three current letters of recommendation; and
- evidence of experience of teacher license/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 (on a 4.00 scale at least 12 semester hours of graduate course work) and a combined verbal and quantitative GRE score of 1000 are preferred.

Specialist in Education: A 3.25 graduate grade-point average and a combined verbal and quantitative GRE score of 1000 are preferred.

Doctor of Philosophy

- A 3.00 undergraduate grade-point average or a 3.50 graduate grade-point average if a graduate degree has been conferred, and a combined verbal and quantitative GRE score of 1000 are preferred.

For students without an M.A. degree, 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 ranking, and specific program requirements.

Applications must be complete to be reviewed. It is the candidate’s responsibility to provide a completed applications packet. Students may be admitted for any semester.

Master of Arts

The primary purpose of the M.A. degree program is to prepare persons to deliver appropriate levels of service to students at the preschool, elementary, and secondary levels in either public or private settings. Applications may request admission for the purpose of obtaining special education literature/certification without also completing an M.A. degree program. Students who do not seek licensure/certification may be admitted selectively to the M.A. program.

The M.A. degree program requires a minimum of 30 semester hours.

Admission

Admission requirements are:
- a completed graduate application form;
- copies of official transcripts for all previous college course work;
Students seeking a secondary (7-12) MD teaching license must obtain (or already have) a regular secondary teaching license/certificate. If required, the following courses are recommended:

70:133 The Culturally Different in Diverse Setting for Admission to the Early Childhood Special Education/ Child Development program.
70:225 Methods: Exceptional Students with Mild Mental Retardation
70:173 Teaching Elementary School 2.5 s.h.
75:104 Methods: High School Reading II 2.5 s.h.
75:187 Developing Reading Skills in the Secondary School 2.5 s.h.
70:101 Career Education and Transition 5 s.h.

Total 40.42 s.h.

The remainder of the required 38 semester hours are elective courses chosen by the student and the academic advisor. Students who meet the requirements for licensure/certification in the area of elementary mental retardation—mild retardation may meet the requirements for inclusion in the area of physically handicapped (K-6) by completing the following courses:

3.15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
70:138 Methods: Children with Visual Disabilities
70:139 Orientation to the Rehabilitation of the Physically Handicapped Child 3 s.h.
70:254 Supervised Teaching with Physically Handicapped 5 s.h.

Early Childhood Special Education

Poor teaching/licensure/certification is desirable but not required for admission to the early childhood special education/child development program. Applicants who do not already have licensure/certification must complete an 11-semester-hour professional education core, which is not applicable toward an M.A. degree, as follows:

70:100 Introduction to Elementary and Early Childhood Teaching 3 s.h.
70:137 Educational Psychology and Measurement 3 s.h.
70:150 Human Relations for the Classroom Teacher 3 s.h.
75:91 Auditory Equipment for Instruction 1 s.h.
75:42 Introduction to Microcomputing for Teachers 1 s.h.

The following courses, in addition to the above core requirements, form the program of study for early childhood special education.

70:117 Inservice/Continuation Program for Disabled 3 s.h.
70:121 Assessment of Young Children with Disabilities
70:124 Development of Young Children with Disabilities 3 s.h.
70:373 Methods: Early Childhood Special Education Ages 0-3 3 s.h.
70:374 Methods: Early Childhood Special Education Ages 3-6 3 s.h.
70:378 Specials of Young Children with Disabilities
7:11 Language Development
7:41 Communication I 1 s.h.

70:276 Supervised Teaching: Early Childhood Special Education I (1/2 semester, 1/2-time in a center-based program) 3 s.h.
70:277 Supervised Teaching: Early Childhood Special Education II (1/2 semester, 1/2-time in a home-based program) 3 s.h.
70:257 Seminar: Teaching, Early Childhood Special Education 1.5 s.h.
70:258 Seminar: Early Childhood Special Education in the Community, education courses 0 s.h.

Test 20 s.h.

The remainder of the required 39 semester hours are elective courses chosen by the student and the academic advisor. Students must complete a minimum of 30 semester hours in the area of moderate/severe/profound mental disabilities.

Moderate/Severe/Profound Mental Disabilities

Poor teaching/licensure/certification is desirable but not required for admission to the moderate/severe/profound mental disabilities licensure/certification program. Applicants who do not already have licensure/certification must complete an 11-semester-hour professional education core, which is not applicable toward an M.A. degree, as follows:

70:110 Inservice: Elementary and Early Childhood Teaching 3 s.h.
70:255 Educational Psychology and Measurement 3 s.h.
70:180 Human Relations for the Classroom Teacher 3 s.h.
75:91 Auditory Equipment for Instruction 1 s.h.
75:42 Introduction to Microcomputing for Teachers 1 s.h.

The following courses, in addition to the above core requirements, form the program of study for moderate/severe/profound mental disabilities.

70:157 Inservice/Continuation Program for Disabled 3 s.h.
70:260 Behavioral Principles 2 s.h.
70:261 Methods: Persons with Moderate/Severe/Profound Mental Disabilities I 3 s.h.
70:262 Methods: Persons with Moderate/Severe/Profound Mental Disabilities II 3 s.h.
70:245 Issues: Teaching Persons with Moderate/Severe/Profound Disabilities 3 s.h.
70:247 Supervised Teaching: Elementary Moderate Mental Disability (1/2 semester, 1/2-time) 2 s.h.
70:245 Supervised Teaching: Severe/Profound (1/2 semester, 1/2-time) 3 s.h.
70:246 Supervised Teaching: Moderate/Severe/Profound 1 s.h.
70:248 Adaptations for Students with Multiple Disabilities 3 s.h.
70:249 Cardiac/Vascular Rehabilitation course 0 s.h.

The remainder of the required 37 semester hours are elective courses chosen by the student and the academic advisors. Students must complete a minimum of 30 semester hours in the area of multietiological resource teaching.

Multietiological Resource Teaching

A core of five to six courses is required.

70:117 Inservice/Continuation Program for Disabled 3 s.h.
70:222 Supervised Teaching: Elementary Resource Program 5 s.h.
70:200 Seminar: Graduate Supervised Teaching 1 s.h.

At least two of these:

70:131 Introduction to Learning Disabilities 3 s.h.
70:132 Introduction to Behavioral Disorders 3 s.h.
70:135 Mental Retardation 3 s.h.

Students seeking an elementary (K-6) multietiological resource teaching license/certificate must obtain a regular elementary teaching license/certificate. The following courses also are required.

70:226 Methods: Children with Reactions Disorders 3 s.h.
70:211 Methods: Elementary Resource Teaching 3 s.h.
70:173 Teaching Elementary School Mathematics 2.5 s.h.
70:271 Advanced Reading Clinic Techniques 2.5 s.h.
70:272 Advanced Reading Clinic Practicum 2.5 s.h.

Students are unable to complete 70:271, 70:272. In these courses may be taken.

70:175 Reading Instruction: Teaching Reading K-12 3 s.h.
70:184 Diagnostic and Prescriptive Approaches to Reading Instruction K-12 3 s.h.

Total 37.42 s.h.

Students seeking a secondary (7-12) multietiological resource teaching license/certificate must obtain all the preceding courses. The following courses also are required.

70:121 Career Education and Transition 3 s.h.
70:175 Teaching Elementary School Mathematics 2.5 s.h.
70:194 Methods: High School Reading 3 s.h.
70:195 Developing Reading Skills in the Secondary School 2.5 s.h.
70:206 Methods: Adolescents with Behavioral Disorders 3 s.h.
70:217 Methods: Secondary Resource Teaching 3 s.h.

Total 34.42 s.h.

Multietiological Special Class with Integration

Requirements include the core courses from 70:117 and the following programs: learning disabilities, behavior disorders, or mental retardation.

For students seeking elementary (K-6) approval, the courses required at the elementary level to the 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.

Special Ed in Education

The program provides advanced graduate training for professionals in the field of special education, including individuals in consultation,
Planning, Policy, and Leadership Studies • Education

PLANNING, POLICY, AND LEADERSHIP STUDIES

Chair: Carl S. R. Ross
Program coordinators: Michael H. administration: George A. Chambers
Program coordinator: Kathy Peterson: Carl S. Ross
Program coordinator: Social Foundation of education: William T. Duffy
Professors: Robert E. Murphy: George A. Chambers, Walter A. Wagner, Bradley A. Lashower, H. Roderick Snyder
Professor emeritus: Jerry N. Katz
Associate professors: Lyle E. Barkley, David D. Bues, William E. Duffy, Robert S. Engel, Lebo B. Volfen, Tom F. Meyers, Jr., M. Anthony, Carl S. Ross
Assistant professor: Oren L. Springer
Assistant professor: Charles M. Mason, Candace L. Volfen
Assistant professor: John K. Cox
Adjunct assistant professor: Stefanie Adams, Amy A. Reed, Lebo B. Volfen
Visiting assistant professor: Wiredg C. S. Bureau
Graduate: MA, M.S., Ph.D.

The Emphasis in Planning, Policy, and Leadership Studies offers programs to prepare professionals, administrators, teachers, and researchers in the fields of educational administration, higher education, and social foundations. The academic programs in the division reflect the diversity of purpose.

Iowa Community College Licenses

Instructor
To qualify for a professional license with authorization to teach in an arts and sciences field of an area community college in Iowa, students must hold a master's degree granted by an approved institution, with specialization in a field of instruction offered in the arts and sciences division of an area college.

All licenses require 3 semester hours of TE 180 Human Relations for the Classroom Teacher. The license is expected to be completed within 2 years of professional preparation appropriate to teaching in a community college, which meets in a manner that students are satisfied in several ways. Students should consult with their advisor or the dean for information on the Professional Education Program (PEP) of the College of Education.

Program requirements are as follows:

PROFESSIONAL EDUCATION COMPONENT

75-75 Educational Psychology and Measurement
Psychology

75-90 Audiovisual Equipment for Instruction

75-12 Introduction to Microcomputers for Teachers

75-121 Teaching of Adults

75-122 Vocational Education

75-128 Seminar: Health Occupations Education

75-129 Community College Teaching Internship

75-1210 Curriculum Development: Application to Community College and Health Career Education

25-128 Urban Community College and Health Career Education

25-129 Additional Specialty course work in health occupations education

Course work in health education, health education and social foundations should be planned carefully in consultation with the advisor.

Students are required to take workshops or courses offered by specific health colleges or choose electives

Undergraduate Program

Higher Education—Major in Health Occupations Education

The health occupations education major prepares teachers for employment at the community college or 4-year colleges to prepare health occupations education programs. In addition to basic skill and General Education requirements of the College of Liberal Arts, students complete courses in professional education and in the health occupations education specialty area and/or supporting areas. Students are required to apply this current appropriate certification, licensure, or registration appropriate to the area of health occupations education to which they wish to attend (e.g., dental assisting, medical office assisting, or respiratory therapy). The health occupations education major is planned for the health sciences, with a focus in health care education and liberal studies appropriate to teachers who wish to earn a baccalaureate degree.

Applicants to this program must satisfy criteria for the Professional Education Program (PEP) of the College of Education.

Program requirements are as follows:

PROFESSIONAL EDUCATION COMPONENT

75-75 Educational Psychology 3.0 hours

75-90 Audiovisual Equipment for Instruction

75-12 Introduction to Microcomputers for Teachers

75-122 Teaching of Adults

75-128 Vocational Education

75-128 Seminar: Health Occupations Education

75-129 Community College Teaching Internship

75-1210 Curriculum Development: Application to Community College and Health Career Education

25-128 Urban Community College and Health Career Education

25-129 Additional Specialty course work in health occupations education

Course work in health education, health education and social foundations should be planned carefully in consultation with the advisor.

Students are required to take workshops or courses offered by specific health colleges or choose electives
such as development of educational aids or computers in education, in keeping with their educational goals.

**Graduate Programs**

**Educational Administration**

The program in educational administration prepares technically competent candidates for leadership positions. It prepares those for M.A., Ed.S., and Ph.D. degree work in educational administration. In addition, the program is designed to provide the necessary background in general education, including courses in educational theory and practice. It also prepares students for professional certification in special areas of specialization.

**Licensure/Certification**

To be eligible for recommendation by the University of Iowa for licensure/certification in Iowa or as an elementary principal, secondary principal, or superintendent, students must complete the appropriate program. The specific requirements for each program are available through the College of Education and with other offices in the University.

**Teacher Licensure Program**

Students who hold an M.A. degree must satisfy all core requirements and must complete content in the College of Education for the licensure/certification they seek. An administrative licensure/certification program is a level different from that characterizing the student's prior preparation and experience and must be planned with an advisor. Because of the specific requirements for each administrative licensure/certification, candidates are required to plan their programs with their advisor’s approval.

**Master of Arts**

The M.A. program prepares individuals for appointment as elementary school principals or superintendents in public schools. It also prepares graduates to serve in area education agencies and state departments of education. The Master of Arts program requires at least 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 evidence of academic ability and professional promise.

**Course Requirements**

With the aid of an advisor, the student prepares a plan of study including the following core requirements:

- **72:201 Foundations of School Administration**
- **72:206 Administration of Students with Special Needs**
- **72:207 The Principalship**
- **72:298 Legal Aspects of School Personnel**
- **72:300 Leadership and Evaluation**
- **72:300 Design and Organization of Curricula**

**For Iowa principalship licensure/certification, students must meet the baccalaureate degree requirements of the state of Iowa. Students specializing in elementary, secondary, or central administration by completing one of the programs outlined below. Candidates may choose electives approved by the advisor to satisfy the following degree requirements.**

**Elementary Level**

- **72:208 Contemporary Management Strategies for the Elementary Principal**
- **72:401 Field Service Project in Elementary Administration**

**Secondary Level**

- **72:209 Contemporary Management Strategies for the Secondary Principal**
- **72:403 Field Service Project in Secondary Administration**

**Central Staff Administration**

- **72:193 Introduction to Statistical Methods**
- **72:295 Financial Management of Local School Systems**
- **72:404 Field Service Project in Central Administration**

**COMPREHENSIVE EXAMINATIONS**

The M.A. comprehensive examination consists of a three-hour examination in educational administration and one three-hour examination in a specialized area of educational administration on 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 serves school administrators in upgrading their administrative data to the level of superintendent of schools. Students seeking licensure/certification plus a program approved by an advisor in one area 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 evidence of academic ability and professional promise.

**Financial Aid Resources**

Students have access to various forms of financial aid, including loans, grants, and scholarships, to assist in meeting educational expenses.

**Research**

All candidates for the Ed.S. degree must complete a formal research paper (at semester hours) that deals with a specific problem in school administration or instruction.

**Comprehensive Examination**

A comprehensive examination for the Ed.S. degree consists of a three-hour examination in educational administration or one three-hour examination in a specialized area of educational administration. 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 Ed.S. in Special Education Administration program focuses on the administration of special education programs. The program provides specialized training and experience in the administration of special education programs.
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 placement in jobs in the public sector, non-profit organizations, and for teaching at the college level.

Admission to the program is limited to students who have held a bachelor's degree in psychology and related fields. Applicants are required to submit transcripts, letters of recommendation, and a statement of purpose. The program requires a minimum of 60 semester hours.

Doctor of Philosophy

The Ph.D. program prepares students for leadership positions in all levels of educational administration. Research, teaching, and the college or university level through individually designed programs that include core coursework in related disciplines and research projects. 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 experience are planned formally. Students are expected to achieve competence in the areas of educational program planning, finance and management, leadership theory, evaluation, and research methodologies that include statistical methods. They also must gain expertise in areas of specialized programs and personnel policy analysis.

Course content in the Ph.D. program is divided into areas, a core, and specialization areas. Core coursework includes courses in research methods, policy analysis, and social research methodology. Specialization areas include educational administration, school administration, school finance, curriculum, legal aspects, theory, and school personnel. Students must demonstrate proficiency in one research method.

Admission

Applicants must satisfactorily complete Graduate College requirements and be selected through a formal review process. The Division admits a maximum of ten students in the fall semester or the preceding summer semester. In addition, the program offers an accelerated master's degree in educational administration. Applicants must have completed at least two years of full-time graduate study in educational administration, with a grade-point average of 3.0 or better. The Graduate Record Examination (GRE) General Test scores are also considered. A written statement addressing one of the following topics: personal philosophy of education, steps in the professionalization of teaching, current educational issues, and the role of administration in educational organizations.

Complete application materials must be submitted by January 1 for fall semester admission. Admission decisions are made by the division faculty; applicants are notified by February 15.

Core Courses

Course work is designed to provide the necessary background for further study, including research in specialized areas, and develop competence in the functional areas of educational administration. The four core courses include planning of educational personnel, program analysis of the political and economic functions of public education, evaluation of administrative leadership theories, and options in research method and quantitative analysis.

Each core course carries four semester hours of credit, and is open only to Ph.D. students, and requires the development and practice of plan writing, reading, and writing skills. Seminar design primarily for doctoral candidates are offered to supplement each functional area. Scholarship is reflected in writing, reading, and research in all doctoral programs.

Core Courses

Students planning to an admission must complete a semester hour core course outside the College of Education with the advisor's approval.

Comprehensive Examinations

Doctoral students must satisfactorily complete one comprehensive examination in the six common areas of educational administration and a three-hour examination based on the student's area of specialization and approved by the student's advisor and the dissertation chair. Students must complete the comprehensive core courses and must be registered for the required examination. Students must be registered in the Comprehensive Examination in the year of the exam. No Ph.D. comprehensive examinations are held during summer sessions.

Students pursuing doctoral programs in areas other than educational administration who wish to use some aspect of the educational administration program in an area of comprehensive examination, should consult with an advisor in the Division of Planning, Policy, and Leadership Studies early in their sequence of study.

Any of the areas of specialization open to doctoral students in educational administration are open to other doctoral students who meet the necessary registration prerequisites for specific courses. Students should complete approximately 12 semester hours in one area of specialization before scheduling a comprehensive examination. If an student decides to use a field within educational administration as a major comprehensive area, he or she should plan to complete approximately 18 semester hours of diversified course work in educational administration.

Research Dissertation

Prospectus

All students must write a formal dissertation prospectus and submit it for approval first by their advisor, and then by the members of the doctoral committee. Students and advisor determine when the prospectus is complete. A final evaluation of the prospectus is made at the end of the prospectus committee meeting. Dissertation prospectus meetings are not held during summer sessions.

Comprehensive and Final Examinations

Students must complete 30 semester hours of dissertation research credit. The doctoral program culminates with a formal defense of the dissertation. Students usually take the examination within a month of their anticipated time of graduation. They must be registered at the University of Iowa during the semester in which they graduate.

Residency

Each doctoral candidate must successfully complete two semesters (a minimum of 9 semester) hours excluding credit on campus to fulfill the residency requirement. The following sample programs must include 90 semester hours and counts that students enter with a M.A. and 32 semester hours of graduate credit.

Core Requirements

J 205 Administration of Educational Programs and Personnel
4 s.h.
J 204 Politics and Economics of the Administration of Public Education
4 s.h.
J 209 Administration of Leadership
4 s.h.
J 570 Research Methodology and Quantitative Analysis
4 s.h.

Other Required Courses

Corporate courses selected with approval of advisor
4 s.h.
Research design and/or statistics
4 s.h.
Thesis
6 s.h.
Electives which in certain specialization, students particularly include two or more electives in one area of specialization, to a maximum of 12 or more semester hours in a specific area

Total
90 s.h.

Social Foundations of Education

Social foundations of education are an interdisciplinary program designed to enable students to develop an understanding of the nature 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.
79.315 Curriculum Development in Higher Education
Basic educational theory and principles of design and implementation appropriate to development of educational programs.

79.316 Policy, Planning and Implementation in Education
Review of research, applications. Same as 79.314.

79.317 Administrative Decision Making in Higher Education
Analysis of administrative problems and cases in higher education. Emphasis on the organization of educational programs. Prerequisite: 79.214 or 79.215 or 79.216 or 79.217.

79.333 Practice in Higher Education

79.350 Seminar: Theory and Practice of American Higher Education
Organizational patterns and trends in higher education. Includes an examination of the American higher education system. 79.216 or 79.217.

79.322 Introduction to Planning, Policy Analysis, and Evaluation
Basic theoretical and methodological approaches to educational policy analysis, including case studies. 79.216 or 79.217.

79.324 Organizational Theory and Administrative Behavior
An introduction to formal and informal organizations. Practical implications of organizational behavior and theory on higher education institutions. 79.216 or 79.217.

79.325 Education and Public Policy
Policy process, emphasis on research. Behavioral organization in the policy process. Emphasis on interpretation of educational programs and policies. 79.216 or 79.217.

79.326 Higher Education Management
Behavioral science and management research in higher education institutions. Emphasis on student characteristics and the organizational and administrative functions of student life. Prerequisite: 79.216 or 79.217.

79.327 Administration of Technical/Educational Programs
Qualitative analysis in the setting of educational and policy contexts. Includes an examination of the institutional and administrative structures of technical and vocational education. 79.216 or 79.217.

79.416 Program Evaluation in Higher Education
79.418 Educational Management
79.419 Evaluation of Educational Programs

79.430 Ph.D. Thesis in Higher Education

PSYCHOLOGICAL AND QUANTITATIVE FOUNDATIONS

Chapter 1: Learning and Memory

1.1 Sensation and Perception
1.2 Attention and Alertness
1.3 Perception and Cognition
1.4 Learning and Memory

Chapter 2: Thinking and Intelligence
2.1 Theories of Intelligence
2.2 Information Processing
2.3 Problem Solving
2.4 Creativity

Chapter 3: Emotion and Motivation
3.1 Theories of Emotion
3.2 Motivation and Behavior
3.3 Emotions and Personality

Chapter 4: Social Psychology
4.1 Social Influence
4.2 Social Cognition
4.3 Relationships and Intimacy

Chapter 5: Developmental Psychology
5.1 Infancy and Early Childhood
5.2 Middle Childhood
5.3 Adolescence

Chapter 6: Psychopathology
6.1 Psychopathology in Clinical Practice
6.2 Psychopathology in Research

Chapter 7: Applied Psychology
7.1 Industrial/Organizational Psychology
7.2 Clinical Psychology
7.3 Personality and Social Psychology

Chapter 8: Research Methods
8.1 Research Design
8.2 Data Analysis
8.3 Research Ethics

Chapter 9: Statistics
9.1 Descriptive Statistics
9.2 Inferential Statistics
9.3 Advanced Statistical Methods

Chapter 10: Measurement
10.1 Classical Test Theory
10.2 Item Response Theory
10.3 Measurement Error

Chapter 11: Psychological Assessment
11.1 Individual Assessment
11.2 Group Assessment
11.3 Assessment of Social and Political Issues

Chapter 12: Psychological Testing
12.1 Personality Tests
12.2 Intelligence Tests
12.3 Achievement Tests

Chapter 13: Educational Psychology
13.1 Learning Theory
13.2 Instructional Technology
13.3 Classroom Management

Chapter 14: Developmental Psychology
14.1 Infancy and Early Childhood
14.2 Middle Childhood
14.3 Adolescence

Chapter 15: Social Psychology
15.1 Social Influence
15.2 Social Cognition
15.3 Relationships and Intimacy

Chapter 16: Personality and Social Psychology
16.1 Personality Theory
16.2 Personality Assessment
16.3 Social Psychology

Chapter 17: Research Methods
17.1 Research Design
17.2 Data Analysis
17.3 Research Ethics
The student's advisor specifies additional coursework in areas appropriate to the student's interests and vocational objectives. These courses typically include additional work in educational psychology and courses offered by other College of Education divisions and University departments.

Students who concentrate in the area of statistics, with the intention of teaching on the college level, are required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curriculum, counseling, and higher education. All students must develop familiarity with computer-programming techniques and computational analytics programs.

Candidates who enter the program without completing an M.A. thesis must complete a substitute project approved by three members of the student's 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 15 or more semester hours of thesis credit.

The record of every student admitted to the program is reviewed after completion of approximately 18 semester hours of course work. The steering committee considers grade points, evidence of critical and analytical skills, development since admission to the program, and progress for continued enrollment. Students who show insufficient potential or deficiencies that cannot be remedied are dropped from the program.

Following completion of the major portion of their course work, candidates must write comprehensive examinations in the three areas of specialization and in a fourth area of concentration. Typically, these consist of three or more written examinations over the field of applied statistics, educational measurement, and educational psychology or an approved substitute area. A substitute area is generally one in which the candidate has at least 90 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 administered by an oral examination in which the committee members may seek further evidence of the candidate's command of the three fields. A single decision is rendered on all aspects of the comprehensive examinations.

Counseling Psychology

The doctoral program in counseling psychology was granted full accreditation by the American Psychological Association in 1983. Full accreditation was renewed in 1998.

The program's goal is to prepare doctoral-level counseling psychologists, with a broad foundation in psychology as a science and contribute to the advancement of the profession. No matter what degree is offered in counseling psychology, the faculty endorses a scientific/consumer model of training and expects students to become competent researchers and professionals. Graduates find positions in higher education, counseling centers, clinics, private practice, hospitals, and industries.
measurements, and research methods. The program focuses on preparation for entry into a specific discipline. Rather, it contributes to a broad understanding of the psychological principles on which education builds.

ADMISSION
Admission requirements are the same as those prescribed by the Graduate School. Typically, successful applicants have a minimum of 3.0 academic units in their current program. All applicants should be notified of admission by May 1 for fall semester, by October 1 for spring semester, and by March 1 for summer session. Admissions decisions are announced approximately one month after the application deadline.

REQUIREMENTS
Students may earn the degree with or without thesis. The M.A. without thesis requires a minimum of 32 semester hours of course work; with thesis, it requires a minimum of 28 semester hours of course work plus 2 to 4 semester hours of thesis credit. Both programs require 741-120 Introduction to Statistical Methods or its equivalent. Students who intend to apply for admission to the Ph.D. program should take the M.A. with thesis. Students plan the remainder of the program in consultation with their advisors, choosing courses from the following four areas: human development, cognitive/sensory, motivation/socialization/personality, and individual differences. Students are encouraged to take at least one course in each of these areas. The program also encourages students to enroll in at least two courses outside the discipline.

The record of every student admitted to the program is reviewed near the end of the second semester in residence. The program faculty considers course grade point average, evidence of critical and creative thinking skills during the year, and promise for continued growth. deficiencies identified in the evaluation must be corrected during the following academic year, and promise for continued growth. The feedback received in the second semester is used to develop goals for the student. Students may be dropped from the program at the discretion of the faculty.

The program requires a written statement of comprehensive examinations consisting of a four-hour objective test and a three-hour essay examination or project. The objective test covers fundamental concepts in educational psychology. Several versions are available for the essay exam. Students are assigned toexaminers from among those in their area of interest. Candidates who earn an M.A. without thesis may be admitted to the Ph.D. program jointly with their advisors. The record of each student admitted to the program is reviewed near the end of the second semester in residence. The program faculty considers course grade point average, evidence of critical and creative thinking skills during the year, and promise for continued growth. The feedback received in the second semester is used to develop goals for the student. Students may be dropped from the program at the discretion of the faculty.

After candidates have completed the major portion of their course work, they must take a comprehensive examination. Three options are available: preparation of an integrative review article, completion of an extended research article, or completion of a comprehensive final exam. Students must select their preferred option among these three options and take the examination or any comprehensive final exam. Students may be dropped from the program at the discretion of the faculty.

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Education • Psychological and Quantitative Foundations

these options, six of the size hours of electives must be based on course work in educational psychology, offered by the division or chosen with the advice. The proposed examination schedule must be approved by the comprehensive examination committee.

School Psychology

Specialist in Education

The B.A. program provides course work and supervised field experience in the areas of education and psychology, resulting graduates to qualify for certification as school psychologists (State of Iowa Examination 40).

ADDITION

Undergraduate preparation in psychology or education is desirable but alternative backgrounds are considered. Qualifications include an undergraduate grade-point average above 3.00, Graduate Record Examination (GRE) General Test scores above 500 in the verbal and quantitative areas, strong scores of recommendation, and a demonstrated interest in working with children. Application and supporting materials must be submitted by February 1 for consideration for fall semester admittance. Decisions are made by March 15. A limited number of students are admitted each year.

REQUIREMENTS

The program requires a minimum of 60 semester hours of work in psychological foundations, educational psychology, school psychology, and research methods. Degree requirements include a written comprehensive examination and a research paper prepared in conjunction with course 7P395 Educational Specialist Research (4 semester hours).

Doctor of Philosophy

The Ph.D. program in school psychology prepares students for positions in higher education, administration, 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 average above 3.00, and verbal and quantitative scores above 500 on the Graduate Record Examination (GRE) General Test. The faculty also encourages applications from qualified students with A.A. or B.S. degrees. Applications must include three letters of recommendation and a personal statement of interest and goals. Complete applications, including transcripts and test scores, must be received by February 1 for consideration for fall semester admission. Decisions are made by March 15. A maximum of ten students are admitted to the program each year.

REQUIREMENTS

The program requires a minimum of 60 semester hours. Course work is chosen from four areas: psychological foundations, educational psychology, educational psychology, and research methods. The course of study is designed by the student and the academic advisor. Students are required to write comprehensive examinations and a research project equivalent to one M.A. thesis, participate in an internship, and complete a doctoral dissertation through enrollment for a minimum of 10 semester hours in 7P495 Ph.D. Thesis in Psychological and Quantitative Foundations.

Instructional Design and Technology

Master of Arts

The M.A. 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 consists of 35 semester hours of course work and may be completed with either a thesis or a project.

ADMISSION

Regular admission requires a minimum grade-point average of 3.00 on all previous college course work and a score of 500 or higher on both the quantitative and verbal sections of the Graduate Record Examination (GRE) General Test. These requirements are not met but there is compelling evidence of superior ability, a conditional admission may be granted. Regardless of the admission status, all students are expected to attain a grade-point average of at least 3.00. Applicants are encouraged to include with the application a personal statement about their interests in the field.

Applications for admission must be received by February 1 for fall semester, by October 1 for spring semester, and by March 15 for summer semester. Admissions decisions are announced approximately one month after the application deadlines.

REQUIREMENTS

The degree requires the following core courses (for approved programs).

7W220 Introduction to Instructional Design and Technology
7W220 Design and Production of Media for Instruction
7P387 Psychological Bases of Instructional Design
7P390 Introduction to Educational Measurement
7W220 Advanced Instructional Design and Technology
7W222 Instructional Strategies

Students plan the remainder of their study program in consultation with their advisor, choosing course work in one of the following emphasis areas: classroom instruction, computer applications, instructional development, training and development, media production, or school media. In addition, the student must complete 6 semester hours of study in one area: classroom instruction, computer applications, instructional development, training and development, media production, or school media. In addition, the student must complete 6 semester hours of study in one area: classroom instruction, computer applications, instructional development, training and development, media production, or school media. The program culminates with the completion of a final project and a six-hour period of comprehensive examinations based on courses in the emphasis areas. The examinations are divided into two or three parts as follows: general instructional design, 2.5 hours; area of emphasis, 2.5 hours; other, 0 or 2 hours.

Specialist in Education

The Educational Specialist program in instructional design and technology consists of 60 semester hours of course work beyond the bachelor's. The B.S. is usually considered a final degree.

ADMISSION

Regular admission requires a grade-point average of at least 3.00 on all previous course work and a score of 500 or higher on both the quantitative and verbal sections of the Graduate Record Examination (GRE) General Test. If these requirements are not met but there is compelling evidence of superior ability, a conditional admission may be granted. Regardless of the admission status, all students are expected to maintain a 3.00 grade-point average. Applicants are encouraged to submit with the application a personal statement describing their interests in instructional design and technology. This statement may be helpful in the admissions process.

Applications for admission must be received by March 1 for fall semester, by October 1 for spring semester, and by March 15 for summer semester. Admissions decisions are announced approximately one month after the application deadlines.
Doctor of Philosophy
The Ph.D. program in instructional design and technology emphasizes the acquisition of knowledge and skills that enable graduates to plan, design, develop, deliver, and evaluate instructional interventions that meet the needs of learners in diverse settings. The program is designed to be flexible and to accommodate the individual needs of students. Students are expected to complete coursework and a dissertation. The dissertation should demonstrate original research and scholarly contribution to the field of instructional design and technology.

Requirements
Coursework
The core coursework requirements are designed to provide a comprehensive understanding of the field of instructional design and technology. Courses are offered in a variety of formats, including online, hybrid, and traditional. Students are required to complete a total of 36 credit hours, including coursework in the following areas:

- Educational Psychology
- Technology and Learning Environment Design
- Instructional Design and Development
- Assessment and Evaluation
- Research Methods
- Ethics and Professional Standards

Students must also complete a dissertation, which is a research project that demonstrates original scholarship and contributes to the field of instructional design and technology.

Financial Aid
The financial aid options available to students pursuing the Doctor of Philosophy in Instructional Design and Technology include scholarships, grants, and loans. Students are encouraged to apply for financial aid early in the application process. Additional information about financial aid options can be found on the university's financial aid website.

Courses

- **Psychology, Measurement, Statistics**
  - MA 2232: Educational Statistics I
  - MA 2231: Educational Statistics II

- **Instructional Psychology and Technology**
  - PSY 5311: Principles of Behavior and Learning Theory
  - PSY 5312: Instructional Technology and Design

- **Instructional Assessment and Evaluation**
  - EDU 5311: Assessment in Education
  - EDU 5312: Evaluation of Educational Programs

- **Technology and Learning Environment Design**
  - EDU 5321: Technology in Education
  - EDU 5322: Learning Environments Design

- **Instructional Design and Development**
  - EDU 5331: Instructional Design
  - EDU 5332: Advanced Instructional Design

- **Evaluation of Educational Programs**
  - EDU 5341: Evaluation of Educational Programs
  - EDU 5342: Advanced Evaluation of Educational Programs
TW 214 Interactive Video 3 s.h. Theory, research, design, and production of interactive video and multimedia programs. Emphasis on planning, production, and post-production techniques. Created in course. Prerequisites: TW 204.

TW 225 Advanced Topics in Computer-Assisted Instruction 3 s.h. Advanced topics in research and development activities in computer-assisted instruction. Prerequisites: TW 215 and TW 217.

TW 245 Instructional Computer Simulations 3 s.h. Theory, design, development of computer-simulated instructional systems and games. Method of design, implementation, and evaluation of computer-simulated instructional systems. Prerequisite: TW 204 (584 or 7223). Corequisite: TW 235.

TW 255 Coordinating Theory and Practice 3 s.h. Analysis of conflicting theories and practices in the field of instructional design, including child psychology. Prerequisites: TW 215, 384 or 7223, 7336.

TW 266 Survey of Research in Instructional Design and Technology 3 s.h. Research sources for instructional research, instructional technology, instructional design as reported in the literature. Corequisites: TW 275 and TW 365.

TW 270 Independent Study: Instructional Design for Majors 3 s.h. Students examine some of their concerns. Consent of instructor required.

TW 280 Organizational Development and Change 3 s.h. Program development and change or new writing; includes theory, research, applications. May be repeated. Same as TC 285, TC 286.

TW 281 Instructional Strategies: Instructional Design and Technology 3 s.h. Supervised practice in instructional design and technology. May be repeated. Consent of instructor required.

TW 287 Topics Seminar in Instructional Design and Technology 3 s.h. May be repeated. Consent of instructor required.

TW 311 A.L. Project in Instructional Design and Technology 3 s.h. Projects for the A.L.

TW 311 L.A. Thesis in Instructional Design and Technology 3 s.h. Consent of instructor required.

TW 313 L.A. Project in Instructional Design and Technology 3 s.h. Consent of instructor required.

TW 493 Th.D. Thesis in Instructional Design and Technology 3 s.h. Consent of instructor required.

Working part-time at the Iowa Memorial Union's State Room.
Studying ship hydrodynamics at the Institute of Hydraulic Research

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Mechanical Engineering .......... 354

Dean:
Associate dean: Paul D. Schine
Assistant in the dean: Maria W. Boyd
Director, Center for Computer-Aided Design: Edward J. Tang
Acting director, Institute of Biomedical Engineering: Karen Kim
Acting director, Institute of Hydraulic Research: Robert Ettama

Degrees: B.S., M.S., Ph.D.
Engineering is defined by the Accreditation Board for Engineering and Technology as that profession in which knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to use, economically, the materials and forces of nature for the benefit of mankind.

In short, engineering in 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 life in or on the major career opportunities in the engineering profession. Such opportunities include positions in design, production, development, research, management, and consulting. Engineers are employed in industrial organizations, government agencies, and private practice.

The College of Engineering has two major responsibilities. The first is to provide high-quality undergraduate engineering programs by maintaining contemporary engineering curricula and laboratories, as well as support services such as academic advising and engineering career counseling.

The second responsibility is to provide graduate programs that are necessary to meet the demand for advanced engineering skills and specialties that will contribute to the student's professional development.

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. Bachelor of Science degrees are available in the fields of biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, computer engineering, materials 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 Computer Science, an M.B.A. degree in the School 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 "Citizen and Regional Planning") in the College of Liberal Arts section of the Catalog. A combined degree program usually may be completed in about five years.

In addition, a minor in the College of Business Administration or a minor in business administration or an 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).

Undergraduate Programs

Academic Recognition

Honors Program

The College of Engineering Honors Program provides special recognition for outstanding undergraduate students who participate in the Honors Program. Students may participate in the Honors Program at either the freshman or sophomore level. After completing the first year, students are invited to pursue the program at the sophomore level.

The Honors Program provides a special environment for the outstanding student who is interested in the broader aspects of engineering. Students enrolled in the Honors Program are encouraged to participate in student-run organizations and to pursue advanced degrees in engineering.

Graduation with Honors

Graduation with Honors is conferred on students who have completed a minimum of 120 semester hours of course work, including all prerequisites, with a cumulative grade point average of 3.0 or above. The degree of Bachelor of Science in Engineering (B.S.E.) degree is conferred on students who have completed a minimum of 120 semester hours of course work, including all prerequisites, with a cumulative grade point average of 3.0 or above. The degree of Bachelor of Science in Engineering (B.S.E.) degree is conferred on students who have completed a minimum of 120 semester hours of course work, including all prerequisites, with a cumulative grade point average of 3.0 or above.

Graduation with Distinction

The college awards degrees "with highest distinction" to students in the highest 3 percent of their graduating class, "with high distinction" to students in the next highest 3 percent, and "with distinction" to students in the next highest 3 percent. Ranking is based on students' grade-point averages for all college-level study undertaken up to their final registration.

To be eligible for this form of recognition, students must take their 40-hour second semester of study in residence at the college and must have completed at least 40 semester hours of study in the college before their final registration. Students in the combined engineering/ liberal arts programs are eligible for this recognition regardless of their college in which they have completed their residency requirements.

President's List

Students who earn a 4.0 grade-point average for two consecutive semesters, including summer sessions, at least 12 or more semester hours of graded work, with no 0 or D grades standing on the current or past semester's record, are recognized by inclusion on the President's list.

Dean's List

Engineering students who achieve grade-point averages of 3.50 or above during a given semester on 12 or more semester hours of graded work, with no 0 or D grades standing on the current or past semester's record, are recognized by inclusion on the Dean's list for that semester.

Degree Requirements

The Bachelor of Science in Engineering (B.S.E.) degree requires a minimum of 120 semester hours of course work, including all prerequisites, with a cumulative grade point average of 3.0 or above. The degree of Bachelor of Science in Engineering (B.S.E.) degree is conferred on students who have completed a minimum of 120 semester hours of course work, including all prerequisites, with a cumulative grade point average of 3.0 or above.

Students who wish to be considered for graduation must file an application for degree with the Office of the Registrar before the deadline date during the semester in which the degree is to be conferred.

Students who do not graduate on the date indicated in the application must file the written request for the degree for the next applicable semester. Students do not need to be registered to apply for a degree.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, Iowa residents 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 of advanced mathematics; and one year 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 physical science; and at least two years of social studies;
completed the ACT standardized test with a composite standard score of 24 or above and
a 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.
Students planning a career must have
completed the same high school requirements
as that entered by 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
high school 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 applicant must have:
completed at least one semester of calculus or
its equivalent and at least one semester of
chemistry for engineering and science majors;
and
maintained at least a 2.25 a 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 one semester to complete courses in
foreign language.
Students who do not meet the other high
school course requirements may be admitted
upon special appeal to the College of
Engineering, and may be required to make up
up any deficiencies by a lower level course
in their area of deficiency before enrolling in the
first required mathematics course. For example,
students who have math grades and
maternalized test scores, but who are deficient
by one or two credits in high school
may complete a course such as M21H-101 Elementary
algebra before enrolling in the first
engineering course offered.
Course taken at The University of Iowa to make
up deficiencies do not count toward
graduation. For more information about making up
specific course deficiencies, consult with the
Registrar to the dean.
Eligibilities of the minimum requirements for
admission does not ensure admission to
the College of Engineering. The college
solicit applicants who are qualified to the
study and practice of engineering.
Undergraduate Curriculum
The facility of each engineering program has established a set of required and elective
courses that must be suitably completed as part of the requirements for a degree in that
program. The established set of courses is
viewed 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;
environmental design, and humanities and social
sciences. In addition to the four major stems,
there are a few common background courses
that fall outside of the stems. These courses are
scheduled in the freshman year. They include
Engineering I and II and Rhetoric, which is a
freshman course in writing, speaking, and
critical reading. The Engineering I and II
courses cover a breadth of topics from
engineering as a profession to computer-aided
graphics.
All of the courses in the curriculum stems are
sequenced and integrated in a meaningful manner
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 credits, in mathematics and
two each in chemistry and physics. The faculty of
each engineering program has determined that
there is 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
stems in order to bridge from fundamental
principles to applications and creative practice.
The engineering sciences courses use the
underlying principles learned in the
mathematics and basic sciences courses to
understand and predict the behavior of identified
models of real components or systems
encountered in engineering. These courses
include science, 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 creating 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
consider 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 are the inclusion of realistic
constraints such as economic factors, safety,
reliability, aesthetics, ethics, and social impact.
Because of the need to utilize a spectrum of
basic and applied subject matter, which involves
course work taken early in the curriculum, the

This is the end of the provided text.
10.3 Students who do not meet the eligibility requirement for 10.3 are required to complete the two-course sequence 10.1-10.2: Energetic, for a total of 8 semester hours. However, only 4 semester hours may be applied toward the degree requirement for their title.

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 10.1-10.2 include mathematics courses (M 2M-1-2), chemistry courses (C 4M-5-8), and physics courses (2 4M-8-1).

For undeclared engineering majors who wish to postpone selecting an engineering major beyond the freshman year, a third semester of course common to all the majors could include the following.

**Third Semester**

**23M-41 Differential Equations for Engineers**
- 3 L.H.

25-55 Introductory Physics II
- 4 L.H.

27-57 ICT
- 2 L.H.

27-58 Electric Circuits
- 3 L.H.

27-59 Thermodynamics I
- 3 L.H.

Total: 15 L.H.

Students planning more semesters of coursework in the major 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 Requirement**

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 select, with their advisor's approval, a minimum of 16 semester hours of humanities and social sciences electives with at least 6 hours in the humanities and at least 6 in the social sciences. In each case, the 6 semester hours usually include a junior-level course followed by an advanced-level course from the same department. Social science courses must be in the social sciences and humanities major or specified. Students considering a major in this program should consult "Industrial Engineering" in this section of the Catalog for their required social sciences courses.

Courses that are primarily mathematical or scientific in nature and those that are designed specifically to develop introductory language skills in 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 electives may be selected from any of the following departments and schools:

- African-American World Studies
- American Studies
- Art History
- Classics
- Asian Languages and Literature
- Theater Arts

English; History; Literature; Science, and the Arts; Music; Philosophy; Religion; Linguistics; or other approved by the curriculum committee of the College of Engineering.

Following an introductory-level course, students select a minimum of 3 semester hours of advanced (100-level) courses in an area of sufficient depth of knowledge in an elected area of study. This area of study must be in the same department of the introductory course unless prior approval is obtained from the curriculum committee of the College of Engineering. Language courses do not satisfy any of the humanities area requirements unless the courses are at or beyond the second-year level.

Social science electives may be selected from the following departments and schools:

- Anthropology
- Economics
- Geography
- Political Science
- Psychology
- Sociology
- Journalism and Mass Communication
- Social Work, or others

approved by the curriculum committee of the College of Engineering.

To ensure an adequate depth of knowledge in a chosen area of study and following an introductory-level course, students select a minimum of 3 semester hours of advanced (100-level) course work. This advanced coursework 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 a University of Iowa baccalaureate degree in a combined program in the College of Engineering and Liberal Arts. Students who complete the Bachelor of Science in Engineering by the College of Engineering and the Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Arts in Communication (B.A. in Communications), or B.M. (Bachelor of Music) by the College of Liberal Arts and Sciences may not apply to this program.

Students in this combined program usually are able to meet the graduation requirements of both programs 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 advisors, one in their major department in the College of Engineering and the other in their major department in the College of Liberal Arts.

To enter the combined degree program, students must be eligible for admission to the College of Engineering. Interested students should schedule an appointment with the advisor to the dean of the College of Engineering. Students must be approved for candidacy in the combined degree program by the College of Engineering and must be admitted to both the College of Engineering and the College of Liberal Arts.

Students who enter the program are required to complete the General Education Requirements prior to the requirements for the major in the College of Liberal Arts. Liberal arts high school course or test requirements for admission apply to combined degree program applicants.

It is crucial that students enroll in the proper mathematics and engineering sequence early in their course of study to expedite the completion of their program. 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, 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 106 semester hours of credit, including at least 30 semester hours of courses offered by the College of Engineering and at least 30 semester hours of courses offered by the College of Liberal Arts.

**Combined College of Engineering/M.B.A. Program**

An Accelerated Professional Track (APT) program has been initiated by the College of Business Administration for superior engineering students who want to begin their M.B.A. studies while finishing their undergraduate degree. Engineering students with interest and competency 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. core work during the first year of their four-year undergraduate study. Students may complete up to one-third of the M.B.A. curriculum as undergraduate students in the College of Engineering, with just one year of graduate study.

To qualify for the APT program, students must have completed two of the following courses in engineering study by the time of entry into the APT program, with a grade point average of 3.50 in these courses 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 administration and the graduate administration review applications and undergraduate curriculum requirements, it is anticipated that admitted students will readily qualify for admission to the graduate M.B.A. program upon application.

APT students are required to work in cooperative education or summer internships but may petition to fulfill this requirement with previous work experience. This professional employment experience with private industry is considered to be an important part of the APT program and generally takes place the semester following the spring semester of the engineering degree.

The M.B.A. curriculum is designed for upper-level students; previous course work in statistics is required. The program consists of 30 semester hours of core courses, 12 semester hours of management electives, and 12 semester hours of elective credit. A total of 40 semester hours of courses 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
At the heart of The University of Iowa planning program is an undergraduate degree program that has as its purpose to provide a rigorous foundation for the analysis of public and social issues. The core program is complemented by engineering students at the last two years of the undergraduate program. Second-semester (take all courses) and concentration courses are organized around public policy problem areas. These include: planning, transportation, housing, and community development, urban infrastructure, and economic development. Students major in engineering by completing 9 semester-hour of credit in courses offered by at least one department and schools of the university, including the graduate planning program and the College of Engineering. They complete these courses after graduating from the College of Engineering and while enrolled in the graduate plan in urban and regional planning.

Each student is assigned an advisor from engineering and engineering and planning. During the four years of the program, students work primarily with their engineering advisor and the student to complete the College of Planning. For the fifth year, students confer with their graduate planning advisor.

Two Bachelor’s Degrees in Engineering

Recent College of Engineering undergraduate and current students may earn two bachelor’s degrees in engineering. The requirements for the second degree are as follows: 30 semester hours of credit beyond the requirements for the bachelor’s degree program. The additional semester hours of credit required can be selected from any of the following areas: engineering, science, or humanities. These additional semester hours of credit must be selected with the approval of the college of engineering. Students must have earned a total of 120 semester hours of credit before the degree is awarded.

Minors

While fulfilling degree requirements in engineering, undergraduate students also may require a minor in the College of Business Administration or a minor in any degree granting department approved by the College of Liberal Arts. A minor in an engineering college may be satisfied by satisfying the requirements established by the college offering the minor. A rotation of the minor is discussed on the student’s permanent record. Students must inform the registrar’s office of their fulfillment of minor requirements when they apply for a degree. This assumes that the minor designation is included on their transcript.

Minor in Business Administration

Requirements for this minor are two economics courses (301 and 302), two accounting courses (461 and 462), one finance course (463), and one marketing course (464). Students must complete at least 6 semester hours of credit courses approved by the minor in the College of Business Administration. These courses must be selected from the following: accounting, finance, marketing, and management.

Cooperative Education Program

The cooperative education program is designed to provide students with a minimum of 15 semester hours in the minor department, at least 12 of which are to be advanced courses. The University of Iowa and the College of Business Administration require that students take a minimum of 12 semester hours of credit courses approved by the minor department. Students must complete at least 6 semester hours of credit courses approved by the minor department. Students must complete at least 6 semester hours of credit courses approved by the minor department.

Cooperative Education Program

Cooperative education involves the integration of academic work with practical experience in engineering and related fields. It also provides students with opportunities to work in business, industry, or government. Students can earn a substantial portion of their college expenses during the work periods by performing semesters in academic studies or in industry, government, or business. The length of the work periods is determined by the student’s interest and by the employer. Students can earn a substantial portion of their college expenses during the work periods by performing semesters in academic studies or in industry, government, or business. The length of the work periods is determined by the student’s interest and by the employer. Students can earn a substantial portion of their college expenses during the work periods by performing semesters in academic studies or in industry, government, or business. The length of the work periods is determined by the student’s interest and by the employer. Students can earn a substantial portion of their college expenses during the work periods by performing semesters in academic studies or in industry, government, or business. The length of the work periods is determined by the student’s interest and by the employer.
Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many on-site considerations involved in any engineering project.

The 20-phyl-architecture begins during or immediately following the sophomore year and continues until the beginning of the senior year. The final time for the degree program under this option usually takes five years and includes the equivalent of at least one full year of work experience. The program is an option available to qualified students on a competitive 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 advisor's 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 initial academic advising support they need as they evaluate their educational alternatives and plan their programs of study. The advisor's offices are located in Burgee Hall and Zloy Horace. For more information, contact the Undergraduate Academic Advising Center.

Academic Standards

Semester Load Limit

A normal academic load is about 16 semester hours of course work for a semester, 8 semester hours for a summer session. No student may register for more than 19 semester hours in one semester, or 9 semester hours in a summer session, without the permission of the assistant to the dean.

Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit earned applicable to a bachelor's degree in engineering.

Freshmen—90 to 39 semester hours Sophomore—30 to 29 semester hours Junior—20 to 19 semester hours Senior—10 or more semester hours

Grading System

The college uses a letter grading system with a plus (+) or minus (−) to designate grades 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>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>upper</td>
<td>4.00</td>
</tr>
<tr>
<td>A−</td>
<td>upper</td>
<td>3.75</td>
</tr>
<tr>
<td>B+</td>
<td>upper</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
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<tr>
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</tr>
<tr>
<td>D−</td>
<td>below average</td>
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</tbody>
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This grading system is used for all students in both undergraduate and graduate engineering courses. Grades of D+ or D− are passing grades; that is, courses completed with grades of D+ or D− are acceptable toward college requirements. Grades of A+ have a value of 4.33 to calculate grade-point averages for a student, but the average displayed in University records will be truncated to ten so that it does not exceed 4.00.

Academic Probation and Good Standing

Students enrolled in the College of Engineering who fail to attain the following minimum semester and cumulative grade-point averages based on all work taken at The University of Iowa are placed or continued on academic probation:

Freshmen—1.80 Sophomore—1.90 Junior—1.95 Senior—2.00

Students whose semester and cumulative grade-point averages equal or exceed these appropriate to their classifications are considered to be in good standing in the college.

Students are removed from, or placed on, academic probation only at the end of a semester. Students are not permitted to re-register without specific approval following two consecutive semesters on probation. Students who have not made satisfactory improvement in scholarship may be dismissed from the college; they may petition the assistant to the dean to be placed on academic probation after an interval of two regular semesters.

Dropping and Adding Courses

Courses may be added with permission of the advisor and the instructor during the first three weeks of the semester or first five weeks of the summer session.

Courses may be dropped with permission of the advisor and the instructor at any time during the first ten weeks of the semester. Only under extraordinary circumstances may courses be dropped after the tenth week, in which case special approval must be granted by the advisor, the course instructor, and the associate dean. Under no circumstances are students permitted to drop after the beginning of the scheduled final examination period.

Undergraduates receive the mark of WF for any course dropped after the third week of the semester or after one final week of the summer session. To curtail excessive repetition and dropping of the same course, students may not drop the same course with a mark of WF more than twice. Special courses that may be repeated are exempt from this rule.

Withdrawal of Registration

Students in good academic standing who withdraw from registration during the first four weeks of a regular semester, or during the final three or more weeks of a twelve- or eighteen-week summer session, respectively, are not permitted to enrol for the semester immediately following without specific approval from the assistant to the dean.

Students on academic probation who withdraw from registration at any time without good cause are considered as having been dismissed for poor scholarship.

Withdrawn cards for students enrolled in the college are signed by the assistant to the dean upon recommendation by the student's advisor and department chair.

Pass/No Pass Option

A maximum of two courses taken in the College of Liberal Arts or Business Administration on a pass/no pass basis may be applied toward satisfaction of the humanities and social sciences requirements. Students who wish to take such courses in liberal arts or business administration pass/no pass must meet the conditions and follow the procedures specified by these colleges. The pass/no pass option may not be used for two courses taken to satisfy the elective requirements.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass/no pass basis under the following conditions:

- Students must have a minimum semester and cumulative grade-point average equal or exceed those appropriate to the classification that is considered to be in good standing in the college.
- Students are removed from, or placed on, academic probation only at the end of a semester. Students are not permitted to re-register without specific approval following two consecutive semesters on probation. Students who have not made satisfactory improvement in scholarship may be dismissed from the college; they may petition the assistant to the dean to be placed on academic probation after an interval of two regular semesters.

No course work taken in the College of Engineering may count as a pass or no pass toward requirements for the 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 is elected only prior to completion of a course for which the student received a pass grade. The option may be applied to no more than three courses, and it is 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 courses may use this option for a maximum of three courses, while students who transfer between 43 and 55 semester hours of credit may use this option for no more than two courses, and students who transfer 56 or more semester hours may use this option for only one course. Students who...
Credit by Examination

Students who have acquired knowledge in engineering subject matter from sources other than formal course registration may be granted the opportunity to obtain credit toward graduation by examination. For example, credit for an engineering core course may be granted by achieving a satisfactory test score on a comprehensive exam similar to a final exam for that course. Conditions and instructions for this policy are established by the faculty of the College of Engineering. Students who want to apply for such an examination should contact the assistant to the dean.

Credit by Validation

Students with course credits obtained at an unaccredited institution may request validation of the credit if it is earned during the preceding 10 years. Credit by validation may be granted after students have completed at least 12 semester hours of course work at The University of Iowa that includes appropriate lower-division classes to which the work to be validated is prerequisite, Students who want to use this option should contact the assistant to the dean during their first semester of enrollment in the College of Engineering.

Credit from Other Colleges

Course requirements in engineering may be satisfied by credits earned from accredited other colleges in 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 listing work that is applicable for admission. After the credit has been certified by the Office of Admissions at the University, work from an accredited institution and after admission has been granted, the credit is recorded by the assistant to the dean or transferred to the College of Engineering.

Satisfaction of engineering course requirements by transfer credit may be approved by the assistant to the dean if a course-by-course basis, there is a match in the content and level of the transfer course, and the grades earned for such courses are C or higher. Students who want to satisfy the engineering core course requirements by transfer work should contact the assistant to the dean for details.

Students planning to attend a two- or four-year institution before transferring to the College of Engineering are well advised to discuss their planned transfer with officials at both schools before evaluating courses on the basis of the prerequisites listed for engineering courses.
Misconduct and Complaints

Student Academic Misconduct

Regulations dealing with cases of cheating or plagiarism are delineated by a college policy. In cases of cheating on an exam or quiz, the policy recommends that the instructor reduce the student’s grade, with the assignment of F for the course. When a course grade has been reduced to an F, the student may not keep the course or take the second-semester option to retake the course if the student’s grade is unacceptable. At the beginning of each semester, course instructors individually advise 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 shall write a 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, complaints with complaints against faculty must first attempt to resolve the issue with the faculty member. Lacking a satisfactory outcome, the students 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 member’s supervisor or from the dean of engineering. The procedure is to receive a complaint. However, grievances generally can be addressed directly and favorably at the faculty or chair level. If grievances are not resolved at this level, students should discuss their complaints with a dean of engineering.

Student Organizations and Activities

The College of Engineering student body is organized into student organizations and activities involving the entire college, such as the student and faculty plant, the housing and room movement, MECCA Week, and sponsoring of a nationally prominent speaker during National Engineers’ Week. The organization also acts on a college-wide manner of general student interests.

Engineering students publish their own student journal, Markham & Whipple. All positions are staffed by students, with faculty serving only in an advisory capacity.

The following technical societies are represented by the University of Illinois engineering chapters. American Institute of Chemical Engineers, Institute of Electrical Engineers, Society of Computer Simulation, American Society of Civil Engineers, American Society of Mechanical Engineers, and Institute of Electrical and Electronic 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 junior 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 biometric engineering society; Phi Lambda Upsilon, honorary chemical and chemical engineering society; Chi Epsilon, honorary civil engineering society; Beta Kappa Mu, 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 Multicultural 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 requirement for professional registration is graduation from an accredited engineering curriculum of at least four years, followed by at least four years of professional experience. The agency that registers and monitors the licensing procedure is known as the State Board of Examiners. The agency must determine the qualifications of the applicant. The agency must, in addition, certify that the individual has met the requirements of the board. The agency may also require the applicant to take an examination in order to determine his qualifications for the professional practice of engineering.

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Graduate Programs

The general rules and regulations for the graduate programs are delineated by the College of Engineering. 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 these 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 100 periodicals. It is equipped with CD-ROM stations and microcomputer stations and a full set of periodicals. Iowa Computer-Aided Engineering Network (ICAEN)

This facility provides primary support for the College of Engineering. ICAEN consists of approximately 100 Hewlett-Packard computer workstations. Each of these is a powerful computer joined with a high-resolution video display for graphics applications. These workstations are tied together by a high-speed network, allowing all stations to share common data, programs, and peripherals. The workstations are augmented by a large number of Apple Macintosh computers that can be used for software engineering workstations or for Unix Computing Center facilities, or for access to national computer networks. A variety of printers, plotters, and other specialized devices are available through the ICAEN system.

Software supported by ICAEN includes several programming languages, graphics and word processing facilities, and electronic mail. Also available are a number of contemporary software packages for computer-aided engineering, including two- and three-dimensional drafting, and design, data analysis, mathematical evaluation, surface and solid modeling, finite element modeling and analysis, computational manufacturing, system simulation, control system analysis, and other computing facilities.

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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 1910 and in 1951, it was organized formally to coordinate capabilities, facilities, and resources available at the University for solving problems in engineering hydraulics and hydrology. It sought to broaden its scope of activities to include fluid mechanics.

Active programs of basic and applied engineering research are conducted at IIHR in five modern, well-equipped laboratories with total floor space exceeding 72,000 square feet. Programs currently under development include the following areas: ambient transport mechanisms; river engineering; sediment transport; ice/icec rct engineering; hydraulic structures; water resources development; computational hydraulics and fluid mechanics; ship hydrodynamics; boundary layers (with emphasis on 2D3 and three-dimensional boundary layers), turbulence and turbulence shear layers; and water-quality dynamics.

High-level involvement of graduate students is a hallmark of most IIHR projects. Because it is a unit of the College of Engineering, and because it is heavily involved in fluid engineering for industry and in fundamental research programs, IIHR provides unique opportunities for valuable research and engineering experience to undergraduate students and postdoctoral researchers as part of their educational programs.

Center for Computer-Aided Design

The Center for Computer-Aided Design was founded in 1993 to enhance research and development of mechanical systems through methods using modern computer technology and simulation-based tools. In 1989, the Industry/University Cooperative Research Center for Simulation and Design Optimization of Mechanical Systems (founded by the National Science Foundation) was formed within the center. It is currently supported by some 20 industrial members. To advance research in virtual design simulation, the center established the Iowa Driving Simulator in 1997. 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 1997 selected the center to be the host site for the National Advanced Driving Simulator (NADS).

The center's research programs focus on the mechanical system dynamics and design, control systems analysis, structural optimization, dynamic system modeling and simulation, and operation in the loop simulation. A research faculty, including an Atlas FX/8 supercomputer, an Alliance FX/6 minicomputer, a heterogeneous network of workstations ranging from desktop systems to high-performance 3-D graphics workstations, and other related computer equipment, supports the faculty, staff, and students associated with the center. Center researchers also have access to the Iowa Driving Simulator. The most advanced facility of its kind in the United States, the simulator is composed of an Evans and Sutherland PS 330 Image Generator and could feel through computer, a Harris Nightflight, 4804 3D light computer, and the center's Atlas FX/8. The center also makes this simulator available to researchers from other University departments and to non-University researchers.

Facility, staff, and students participating in the center lead the nation in research on operator-in-the-loop simulation and mechanical systems design and analysis. The center distributes the technology and software developed by its researchers to government and industrial participants for use in a broad range on mechanical and structural design activities.

Iowa Institute of Biomedical Engineering

The Iowa Institute of Biomedical Engineering was founded primarily to maximize the economic benefit that Iowa can realize from the University's recognized strengths in the interdisciplinary areas of biomedical engineering and science. The center also advances the development of innovative biomedical and health care products from research and development, secures patents for newly developed products and processes, and transfers these innovations to Iowa industries.

The institute also helps Iowa industries improve productivity through effective use of new biomedical engineering techniques. It has provided a valuable technology transfer service and has provided research information on the characterization of specialized vehicles for persons with disabilities and on materials designed to alleviate the severity of industrial injuries caused by toxic materials.

Graduate and undergraduate student participation in interdisciplinary research and development is encouraged and supported by the Institute faculty members. Faculty members engage in numerous consulting activities for industry, government, and other universities.

Course Numbering System

The title of each course offered by the College of Engineering is preceded by a two-digit prefix and a three-digit suffix separated by a colon. The first digit of the prefix is 5, which identifies the course as one offered by the College of Engineering.

The second digit of the prefix identifies the broad area of study offered by the departments as follows:

1 - Bioengineering
2 - Biomedical and bio-chemical engineering
3 - Civil and environmental engineering
5 - Electrical and computer engineering
6 - Industrial engineering
7 - Engineering core
8 - Mechanical engineering
The two- or three-digit suffix of a course number identifies the level and type of course. Generally the suffix number below 100 designates courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates. The table below provides more detailed listing of course numbers and the information they convey about level and type of course.

4-6-Freehand core courses
7-19-Sophomore core courses
20-29-Junior core courses
30-99—Required courses in undergraduate programs
100-144—Undergraduate professional seminar
65-97—Core courses for which little or no engineering, science, or mathematics background is required
110-189—Elective or lower or lower level graduate course
190—Requirements for nonmajors
190-204—Seminar for undergraduates and graduates
195-207—Core courses for undergraduates and graduates
198—Individual investigations for graduates
199—M.S. thesis research
201-289—Upper level graduate courses
291-294—Seminar for graduates
295-307—Core courses for graduates
299-—Ph.D. thesis research

The courses offered by each department are listed in the department's section by discipline area, starting with the lower-level core courses and proceeding to the higher-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 courses at other institutions should consult with the instructor of the course 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. Undergraduate nonmajors may enroll in engineering courses only by consent of the instructor. Consent for enrollment in an engineering course is based on space available as well as on whether the student has the mathematics, science, and engineering background considered necessary to satisfactorily undertake the course work.

Engineering Courses

All of the undergraduate engineering curricula, which are detailed in the following sections, build upon a core program described in the earlier section entitled "Undergraduate Curricula." Course descriptions follow for those courses that make up the program that are offered through the College of Engineering. Note 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 sections for that major. None of the following courses are available to nonmajors unless special permission is obtained from the instructor to the dean.

570— Cooperative Education Engineering

Assigned Engineering

For selected and outstanding engineering majors participating in the Cooperative Education Program, students register in the course during work assignment periods. Additional information is available from the Cooperative Education Program of the College.

571— Engineering Seminar I

Seminar may be repeated. The seminar is a overview of the College of Engineering Students participate in a one-week orientation program

572—Engineering Internship—Engineering

This course is for students who have permission to work with a professional staff in an engineering or related field. This course may not be applied toward graduation. Credit and grade eligibility are determined by the student's major or by the advisor.

573—Engineering I

Course must be registered for and not be a prerequisite to the course.

574—Engineering II

Engineering curricula using digital computers to enhance instruction and computation. Emphasis on computer-aided design, numerical methods, etc.

575—Basic Engineering

Course must be registered for and not be a prerequisite to the course.

576—Experimental Circuits


579—Thermodynamics I


580—Power Systems


581—Linear Systems Analysis


574 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

575 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

576 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

577 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

578 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

579 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

580 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

581 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

582 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

583 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

584 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

585 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

586 Engineering Semester

Course must be registered for and not be a prerequisite to the course.

587 Engineering Semester

Course must be registered for and not be a prerequisite to the course.
Students who complete this program may pursue career opportunities in industry (the design and development of biomedical instrumentation, diagnostic, lab, life-support systems, prosthetic and orthotic devices, man-machine systems), in government (Veteran Affairs, National Institutes of Health, Environmental Protection Agency, Food and Drug Administration), or they may elect to continue their formal education in the engineering, medical, or legal professions.

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 other 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 may be selected 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.
- 1013 Accelerated Review for 10-12 4 s.h.
- 22M133 Engineering Calculus I 4 s.h.
- 57/57 Engineering I 3 s.h.
- 57/56 Biomedical Engineering Seminar 0 s.h.
- *Humanities or social science elective 3 s.h.
Total 17 s.h.

Second Semester
- 4/14 Principles of Chemistry II 3 s.h.
- 4/14 Principles of Chemistry Lab I 2 s.h.
- 22M143 Engineering Calculus II 4 s.h.
- 20/20 Introduction to Physics I 4 s.h.
- 57/56 Biomedical Engineering Seminar 3 s.h.
- 57/56 Biomedical Engineering Seminar Forum 0 s.h.
Total 16 s.h.

SOHORPHONE YEAR

First Semester
- 22M4-44 Matrix Algebra for Engineers 3 s.h.
- 22M4-44 Differential Equations for Engineers 3 s.h.
- 29/29 Introductory Physics II 4 s.h.
- 2/2 Principles of Animal Biology 3 s.h.
- 57/57 Statistics 2 s.h.

Second Semester
- 57/56 Biomedical freshman/seminar forum 0 s.h.

Total 16 s.h.

Second Semester
- 22M4-42 Vector Calculus for Engineers 3 s.h.
- 57/58 Thermodynamics I 3 s.h.
- 57/50 Dynamics 3 s.h.
- 72/154 Biomedical Engineering Physiology 4 s.h.
- 57/56 Biomedical freshman/seminar forum 0 s.h.

Total 16 s.h.

JUNIOR YEAR

First Semester
- 57/17 Computers in Engineering 3 s.h.
- 57/18 Principles of Electronic Instrumentation 3 s.h.
- 51/40 Biological Systems Analysis I 3 s.h.
- "Engineering science core elective I" below 3 s.h.
- 51/40 Biomedical Measurements I 3 s.h.
- 51/40 Biomedical Engineering Seminar 0 s.h.
Total 16 s.h.

Second Semester
- 22S9-10 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
- Engineering science elective (see below) 3 s.h.
- 57/31 Principles of Design I 3 s.h.
- 57/31 Biomechanics I 4 s.h.
- 57/31 Biomedical Measurements I 3 s.h.
- 51/40 Biomedical Engineering Seminar 0 s.h.
Total 16 s.h.

SENIOR YEAR

First Semester
- 51/40 Biomedical Engineering Systems Design 3 s.h.
- Biomedical engineering design elective (see "Biomedical Engineering, Electrical, Electronics," below) 3 s.h.
- Biomedical engineering science elective (see below) 3 s.h.
- "Humanities or social science elective" below 3 s.h.
- 51/40 Biomedical Engineering Seminar 0 s.h.
Total 16 s.h.

Second Semester
- 51/40 Biomedical Engineering Design Project 4 s.h.
- Biomedical engineering electives (see below) 5 s.h.
- "Humanities or social science electives" below 6 s.h.
Total 15 s.h.

Engineering Science Core Electives

One of these:
- 57/12 Linear Systems Analysis 3 s.h.
- 57/10 Mechanics of Deformable Bodies 3 s.h.
- 57/20 Mechanics of Fluids and Transfer Processes 4 s.h.

Engineering Science Electives

One of these:
- 57/12 Engineering Biological Science 3 s.h.
- 57/12 Fluids Analysis 3 s.h.
- 57/15 Materials Science 3 s.h.
- 57/151 Mechatronic Design 3 s.h.
- 57/20 Mechanics of Fluids and Transfer Processes 4 s.h.

A 100-level, 51-credit course or other engineering science course approved by the advisor.

Biomedical Engineering Electives

A total of 14 semester hours must be chosen with at least one course (3 semester hours) from the biomedical engineering design electives and one 51-credit course (3 semester hours) from the biomedical engineering science electives. The lists are as follows.

BIOMEDICAL ENGINEERING DESIGN ELECTIVES
- 51/40 Biomedical Systems Analysis II 3 s.h.
- 51/45 Biomedical Computer Systems 3 s.h.
- 51/50 Biomechanics 3 s.h.
- 51/53 Biomechanics of Orthopedic Devices 3 s.h.
- 51/54 Biomechanics of Aging 3 s.h.
- 51/55 Cardiovascular Reactance 3 s.h.
- 51/60 Biomechanics of Orthopedic Devices 3 s.h.
- 51/71 Intermediate Biomechanics 3 s.h.
- 51/72 Biomechanics of Orthopedic Devices 3 s.h.
- 51/73 Making Biomechanics 3 s.h.
- 51/74 Biomaterials in Biomedical Engineering 3 s.h.
- 51/77 Computation Materials 3 s.h.
- 51/78 Biomedical Engineering 3 s.h.
- 51/81 Biomedical Imaging 3 s.h.

BIOMEDICAL ENGINEERING SCIENCE ELECTIVES
- 51/40 Biomedical Systems Analysis II 3 s.h.
- 51/45 Biomedical Computer Systems 3 s.h.
- 51/50 Biomechanics 3 s.h.
- 51/53 Biomechanics of Orthopedic Devices 3 s.h.
- 51/54 Biomechanics of Aging 3 s.h.
- 51/55 Cardiovascular Reactance 3 s.h.
- 51/60 Biomechanics of Orthopedic Devices 3 s.h.
- 51/71 Intermediate Biomechanics 3 s.h.
- 51/72 Biomechanics of Orthopedic Devices 3 s.h.
- 51/73 Making Biomechanics 3 s.h.
- 51/74 Biomaterials in Biomedical Engineering 3 s.h.
- 51/77 Computation Materials 3 s.h.
- 51/78 Biomedical Engineering 3 s.h.
- 51/81 Biomedical Imaging 3 s.h.

OTHER ACCEPTABLE BIOMEDICAL ENGINEERING ELECTIVES
- 51/15 Intermediate Mechanics of Deformable Bodies 3 s.h.
- 51/34 Fluids Analysis 3 s.h.
- 51/40 Biomedical Engineering Design Project 3 s.h.
- 51/40 Biomedical Engineering Design Project 3 s.h.
- 51/40 Biomedical Engineering Design Project 3 s.h.
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- 51/40 Biomedical Engineering Design Project 3 s.h.
- 51/40 Biomedical Engineering Design Project 3 s.h.
- 51/40 Biomedical Engineering Design Project 3 s.h.
- 51/40 Biomedical Engineering Design Project 3 s.h.
Graduate Programs

The goal 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 biostatistics, cardiovascular and fluid biomechanics, biomaterials, biomimetic instrumentation, biomechanics, 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 systems. M.S. students who want a more general program may combine emphases, while those who want some specialization in a particular field may accommodate these preferences through the contribution of interdisciplinary courses and appropriate electives from other departments of the College of Engineering and the University.

Ph.D. programs may vary 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 non-thesis program; the latter must include at least 6 semester hours of 200 level course. Students who choose the thesis program may count between 6 and 9 semester hours of credit for thesis research and write toward satisfying the 30-hour minimum. Either degree may be in 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 advisor. An M.S. committee of at least three graduate faculty members, including at least two in the biomedical engineering faculty, is appointed by the dean of the College of Engineering. 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 3.0 minimum grade-point average on a minimum of 20 semester hours of graduate work and successfully complete the final examination administered by the committee.

The requirements for the M.S. may be completed in one calendar year. However, students with assistantships duties and/or other contracts 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:

58:113 Mathematical Methods in Engineering 3 s.h.
58:120 Biomedical Engineering Lab 2 s.h.
72:154 Biomedical Engineering 4 s.h.

Two biomedical engineering courses chosen from any two of the biotechnical, biomaterials, and biomedical areas (the acceptable courses in each area are listed below):

51:141 Graduate Biological Systems Analysis 3 s.h.
51:155 Cardiovascular Biomechanics 3 s.h.
51:160 Biostatistics 3 s.h.
51:177 Computerized Materials 3 s.h.
51:133 Finite Element Techniques in Engineering 3 s.h.

Additional 15 semester hours may be approved by the student's advisor.

The student's plan of study should provide for as much advanced work as applicable and previous preparation permit.

Biomedical Engineering Project

Under the Semester M.S. program, the biomedical engineering department offers a small number of biomedical engineering project opportunities to select incoming graduate students who are interested in pursuing practical engineering projects.

First Semester

58:113 Mathematical Methods in Engineering I (4 equivalent) 3 s.h.
51:120 Biomedical Engineering Lab 2 s.h.
51:280 Advanced Biomedical Engineering Project I 3 s.h.
Design elective 3 s.h.
Technical elective 4 s.h.
Total 15 s.h.

Second Semester

58:115 Finite Element Techniques in Engineering I (4 equivalent) 3 s.h.
51:285 Advanced Biomedical Engineering Project II 3 s.h.
Design elective 3 s.h.
Technical elective 3 s.h.
Total 15 s.h.

Each student receives a $500 per month stipend for project work (ten hours per week).
Doctor of Philosophy

The doctoral program, including acceptable master 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 50 semester hours of formal course work must be completed past the M.S., and at least 12 semester hours must be research-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.

Admissions to the Ph.D. program is conditional until student successfully completes a qualifying examination, which is administered by the biomedical engineering faculty. The decision on the student's performance on this examination is advisory for admission to the Ph.D. program is made by the biomedical engineering faculty.

Admission to Ph.D. candidacy requires a 3.25 minimum grade-point average of all graduate work done at The University of Iowa. Upon completion of the course work specified in the plan of study, with the grade-point average stipulated above, and upon the advisor's recommendation, students are admitted to the comprehensive examination by their committees. In most cases, students usually have only to complete and defend their dissertation in the final examination. Requirements for the Ph.D. generally can be completed in about three years beyond the master's degree.

Admissions and Financial Assistance

Students who have earned a baccalaureate or postgraduate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences, with a 3.00 minimum grade-point average and an acceptable score on the Graduate Record Examination (GRE) General Test (combined verbal and quantitative score of 1250) are eligible to be considered for admission to the University of Iowa biomedical engineering program. Students may, under exceptional circumstances, be considered for conditional admission with a lower grade-point average and an acceptable GRE General Test score. Students on conditional status must achieve a regular status within 6 semester hours of initial registration by attaining a 3.00 minimum grade-point average at the University of Iowa and high acceptance by the graduate faculty. Students who do not meet these requirements are subject to dismissal.

References, letters of recommendation, previous graduate study grade-point average, and other factors also may be considered in making admission decisions.

Special Facilities and Laboratories

Required Core Laboratories

There are two laboratories associated with the two required undergraduate courses: Biomechanics I and Biomechanics II.

Elective Laboratories

The Biomechanics Laboratory is equipped to test mechanical and thermal properties of biomaterials and thin sections of human tissue and prostheses for biomechanics. This laboratory also is used for 51:172 Principles as Biomaterials, 51:173 Metal on Biomaterials, and 51:174 Ceramics and Glasses as Biomaterials.

The Biomechanical Measurements Laboratory is equipped for measuring mechanical variables of clinical and orthopedic interest and for designing electronic instrumentation in clinical engineering. This laboratory also is used for 51:180 Biomechanical Measurements II.

Research Facilities and Laboratories

APPLIED MECHANICS LABORATORY

The Applied Mechanics Laboratory is equipped to study the biomechanics of small bone specimens under complex dynamic loading conditions.

BIOLUMINISCENCE LABORATORY

The Bioluminescence Laboratory is centered around a flow model of the circulatory system. Planar dynamic signals are obtained using ultrasonic flowmeters, pressure transducers, and appropriate amplifiers.

BIOMATERIALS LABORATORY

The Biomaterials Laboratory is equipped to test mechanical properties of biomaterials and with the selection of issues for research.

HEMODYNAMICS LABORATORY

The Hemodynamics Laboratory is equipped to study cardiovascular fluid dynamics, particularly flow past valve orifices and flow in the human aorta. In addition, the laboratory has an imaging-processing system based on the VAX computer with a Quest/Digital 11640 image processor with video camera digitizer.

BIOMEDICAL ENGINEERING I and II

The Biomedical laboratory is equipped to study the biomechanics of head and neck trauma, tendons, spinal kinematics, and the effect of vibration on the spine.

BIOMEDICAL IMAGE PROCESSING AND COMPUTING LABORATORY

This laboratory has an image-processing system used to digitize and analyze anatomical slides, photography, X-ray, and CT scan images.

BOSTONIAN LABORATORY

The Bostonian Laboratory is equipped to conduct physiological experiments on the cardiovascular and respiratory systems.

Courses

Doctoral Special

51:000 Comprehensive Training Assignment-Biomedical Engineering

5 a.h.

51:095 Chemical Analysis

5 a.h.

51:172 Principles as Biomaterials

5 a.h.

51:173 Metal on Biomaterials

5 a.h.

51:174 Ceramics and Glasses as Biomaterials

5 a.h.

51:177 Biomedical Measurements

5 a.h.

51:178 Biomedical Measurements II

5 a.h.

51:180 Biomedical Engineering Design

5 a.h.

51:190 Biomedical Engineering Design Project

5 a.h.

51:260 Biomedical Engineering Analysis

5 a.h.

51:360 Biomedical Engineering I

5 a.h.

51:361 Biomedical Engineering II

5 a.h.

51:362 Biomedical Engineering III

5 a.h.

51:363 Biomedical Engineering IV

5 a.h.

51:364 Biomedical Engineering V

5 a.h.

51:365 Biomedical Engineering VI

5 a.h.

51:366 Biomedical Engineering VII

5 a.h.

51:367 Biomedical Engineering VIII

5 a.h.

51:368 Biomedical Engineering IX

5 a.h.

51:369 Biomedical Engineering X

5 a.h.

51:370 Biomedical Engineering XI

5 a.h.

51:371 Biomedical Engineering XII

5 a.h.

51:372 Biomedical Engineering XIII

5 a.h.

51:373 Biomedical Engineering XIV

5 a.h.

51:374 Biomedical Engineering XV

5 a.h.

51:375 Biomedical Engineering XVI

5 a.h.

51:376 Biomedical Engineering XVII

5 a.h.

51:377 Biomedical Engineering XVIII

5 a.h.

51:378 Biomedical Engineering XIX

5 a.h.

51:379 Biomedical Engineering XX

5 a.h.

51:380 Biomedical Engineering XXI
principles are based on physics, chemistry, mathematics, and biological sciences. Courses in these disciplines, together with the common engineering core courses, provide a strong foundation.

During the junior and senior years, the emphasis is on chemical engineering courses such as transportation, transfer operations, thermodynamics, lift 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 of computer-based data analysis, simulation, and design. A computer cluster is available for student use in the undergraduate laboratory. Also included in the curriculum are elective courses in the humanities and social sciences.

Chemical engineering at Iowa gives students a chance to obtain a broad education that is at the leading edge of technology. It emphasizes fundamental concepts, problem solving, laboratory techniques, and the communication skills needed to keep pace with the world’s and tomorrow’s technical work. Students are encouraged to gain experience with research by working in individual laboratories.

Curriculum

*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

BREDIN YEAR

First Semester
16:33 Accelerated Physics 4 s.h.
4:13 Principles of Chemistry I 3 s.h.
22:00 Engineering Calculus I 4 s.h.
57:3 Engineering I 3 s.h.
*Humanities or social science elective 3 s.h.
Total 17 s.h.

Second Semester
20:17 Introductory Physics I 4 s.h.
4:14 Principles of Chemistry II 3 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
52:34 Engineering Calculus II 4 s.h.
57:9 Engineering II 3 s.h.
Total 16 s.h.

Sophomore Year

First Semester
4:121 Organic Chemistry I 3 s.h.
22:42 Math for Engineers 2 s.h.
22:50-41 Differential Equations for Engineers 3 s.h.
20:18 Introductory Physics II 4 s.h.
57:7 Stats 2 s.h.
*Humanities or social science elective 3 s.h.
Total 17 s.h.

Second Semester
4:132 Organic Chemistry II or science elective 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
22:42-72 Laboratory Numerical Analysis 3 s.h.
52:4 Process Calculations 3 s.h.
57:8 Electrical Circuits 3 s.h.
Total 15 s.h.

Junior Year

First Semester
4:13: Physical Chemistry I 3 s.h.
52:42 Momentum Transport 3 s.h.
52:43 Chemical Engineering Thermodynamics 3 s.h.
57:15 Mineral Science 3 s.h.
52:80 Engineering Biological Science 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
Total 15 s.h.

Second Semester
4:132 Physical Chemistry II (for science elective) 3 s.h.
4:135 Physical Chemistry Laboratory 2 s.h.
22:52-59 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
52:44 Mass Transfer Operations 3 s.h.
52:46 Heat Transfer 2 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
57:21 Principles of Design I 3 s.h.
Total 16 s.h.

Senior Year

First Semester
52:40: Environmental Science 3 s.h.
52:85 Process Dynamics and Control Design 3 s.h.
52:47 Unit Operations Laboratory I 2 s.h.
57:14 Engineering Economy 3 s.h.
*Humanities or social science elective 3 s.h.
Total 15 s.h.

Second Semester
52:48 Unit Operations Laboratory II 2 s.h.
52:48 Chemical Engineering Process Design 3 s.h.
*Humanities and social science elective 3 s.h.
Total 15 s.h.

Graduate Programs

The Department of Chemical and Biological 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 these principles to complex practical 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 students in advanced degree programs are required to assist faculty members in teaching and research as part of the graduate seminar, research.

Research

Current research strengths of the Department of Chemical and Biomedical Engineering are in the areas of catalysis design, reactor design, global and regional environmental research, separation and bioseparation processes, biochemical engineering and applied biocatalysis, and particular medicine processing sciences.

Catalyst and Reactor Design

Within the general area of kinetics, catalysis, and reactor design, research involves research that is being conducted in the areas of heterogeneous, homogeneous, and support-mediated catalysis; gas-liquid reaction; modeling and analysis of homogeneous reactions, and design of novel reactor-separator. Catalytic research is developing fuels and chemicals from renewable resources.

Global and Regional Environmental Research

Commissioners of the environment in which we live and work is a major problem facing today’s engineers. The Department of Chemical and Biomedical Engineering has an active research program in environmental areas such as atmospheric pollution, indoor air pollution, and hazardous waste. Particular emphasis is placed on the chemistry and physics of local, regional, and global air pollution problems. Research in this area includes the development of new methods and techniques for the measurement and analysis of air pollutants. This area is interdisciplinary in nature, and involves both environmental engineering and the Center for Global and Regional Environmental Research.

Separation and Bioseparation Processes

Research at the University of Iowa is centered to better understanding and development of new techniques in the areas of separation and bioseparation processes. In particular, research is being conducted on new techniques in ultrafiltration and microfiltration as well as membrane filtration for the separation of compounds in the environment. In addition, research is being conducted in the membrane science and technology, which is being used to membrane processes such as air separation, gas separation, and biopolymers. Research is focused on the development of new membrane materials and the optimization of membrane processes. Research is also being conducted in the development of new membrane materials and the optimization of membrane processes.

Biocatalysis and Applied Biotechnology

Biochemical engineering involves the industrial application of microorganisms, cells, and tissues for the production of chemicals, pharmaceuticals, biofuels, and biocompatible materials. The department is active in developing new techniques in biotechnological processes, including enzymes in organic solvents, membrane biocatalysis, and biodegradation of xenobiotic compounds. The department also is active in the scale-up of
insect cell cultures for the production of recombinant proteins. Theogenesis of biotechnology with traditional chemical engineering has led to an interdisciplinary area bringing other engineering disciplines such as the Departments of Chemistry, Biological Sciences, Tracing Technologies, and Microbiology and the College of Pharmacy.

Particle Material Processing Sciences

Theoretical and experimental studies in morphological analysis of particulate materials are being conducted. Morphological analysis is concerned with the measurement of particle size, shape, texture, chemical properties, and physical properties. These methods are applied to particulate formation processes and studies of particle and bulk behavior. Examples include wear debris analysis, crystallization, and precipitation (homogeneous and heterogeneous behavior).

Master of Science

A thesis and a minimum of 30 semester hours of graduate credit are required, including at least 24 semester hours completed in residence at The University of Iowa. Work completed in the Summer and Evening Class Program as residence credit may not exceed 6 semester hours, but 6 semester hours may be completed in residence at another recognized graduate college or through the Outdoor Correspondence Study Program at The University of Iowa.

The minimum course work requirement is 24 semester hours beyond eight courses, and the remainder of the 30 semester hours is devoted to related activity. Six semester hours for all M.S. students are expected to maintain a 3.00 minimum grade-point average. M.S. candidates must defend their thesis at the final oral examination. Although it is possible to obtain an M.S. in the year, many students complete the requirements in three or four semesters.

Doctor of Philosophy

The Ph.D. is granted primarily on the basis of doctoral research. Research, based on the successful completion of at least 24 semester hours of course work. Candidates are required to pass a written and oral examination in their field of specialization. A candidate for the Ph.D. must complete at least 72 semester hours of graduate work.

Ph.D. candidates are expected to maintain a 3.50 minimum grade-point average. All doctoral students are required to pass a qualifying examination and a comprehensive examination prior to candidacy for the degree. The Ph.D. comprehensive examination may be a special design project or, at the discretion of the examination committee, may consist of a written examination covering graduate work. These examinations are arranged by members of the examination committee. The role of the comprehensive examination is to be repeated at the discretion of the committee. The rule for the comprehensive examination is 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 who are accepted, depending on evaluation of foreign records. Admission to the graduate program usually requires a 2.80 grade-point average. Conditional admission to the graduate program may be granted to students who have not satisfied the above requirements, with approval from the chair of the chemical and biochemical engineering department.

Applicants should take the verbal, quantitative, and advanced part 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 some undergraduate courses to make themselves comparable to those selected students. Since these undergraduate courses are taken as makeup courses, they cannot carry credit toward a graduate degree.

Financial Aid

A number of fellowships, assistantships, and scholarships are available to graduate students to support the quality of work. 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 metallurgical preparation, including a diamond saw. Mechanical tensile testing equipment and hardness testing machines are also available. Heat treatment and annealing furnaces are available in a nearby laboratory. Teaching aids include metallography specimen kits, thin-section identification, 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 such pieces of equipment, such as a distillation column interfaced with a reciprocating pump, multiphase flow, shell-and-tube heat exchanger, jacketed kettle, flow-through columns for gas absorption, plate and tube heat exchangers, and agitated reactor.

Other equipment includes stirred tank reactors, packed bed reactors, gas chromatograph, and a variety of instrumentations for measuring flow, pressure, temperature, and weight. Equipment in emerging areas of chemical engineering has recently been added, including a fully instrumented microfluidic system, membrane separation, and polymer extrusion. A small shop area 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 intended to supplement the 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 existing control systems.

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 developed. Control systems can be designed and the gain and time constants for single capstans, determination of gains, rules, control, 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 first-order and second-order processes; and determination of system stability and development of feed-forward control schemes.

Experiential arrangements in the laboratory are intended to be in a design to be studied and controlled, yet complicated enough to give students an appreciation for process characteristics inherent in industrial processes (e.g., large time lags, error in parameter estimation).

Graduate Facilities and Laboratories

To support and develop research activities, the department offers a wide variety of facilities. A summary of the major research equipment within and available to the department is listed below.
Undergraduate Program

Civil engineering courses build on the College of Engineering core curriculum and are designed to give students the broad educational background essential to modern civil engineering practice. Electives in the senior year permit greater breadth or additional concentration in areas of specialization, such as structural and foundation engineering, environmental engineering, hydraulics, engineering, and transportation engineering.

Curriculum

The humanities and social science electives must be selected to satisfy the humanities and social sciences requirements of the College of Engineering.

FRESHMAN YEAR

First Semester

413 Principles of Chemistry I 3 s.h.
22M-25 Engineering Calculus II 4 s.h.
57-5 Engineering I 3 s.h.
*Humanities or social science elective 3 s.h.
103 Accelerated Calculus 4 s.h.
Total 19 s.h.

Second Semester

415 Principles of Chemistry Lab II 2 s.h.
22M-36 Engineering Calculus II 4 s.h.
25-49 Matrix Algebra for Engineers 2 s.h.
29-17 Introduction to Physics I 4 s.h.
57-6 Engineering II 3 s.h.
Total 15 s.h.

SOPHOMORE YEAR

First Semester

22M-42 Vector Calculus for Engineers 3 s.h.
29-18 Introduction to Physics II 4 s.h.
57-7 Statics 3 s.h.
57-9 Thermodynamics I 3 s.h.
*Humanities or social science elective 4 s.h.
Total 16 s.h.

Second Semester

22M-41 Differential Equations for Engineers 3 s.h.
57-10 Dynamics 3 s.h.
57-15 Materials Science 3 s.h.
57-19 Macroeconomics of Deformable Bodies 3 s.h.
*Humanities or social science elective 3 s.h.
Total 15 s.h.

JUNIOR YEAR

First Semester

27-23 Mechanics of Fluids and Thermodynamic Processes 4 s.h.
39-21 Principles of Design I 3 s.h.
22M-30 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
53-31 Soil Mechanics 3 s.h.
53-32 Modern Structural Analysis 3 s.h.
53-91 Professional Seminar: Civil Engineering 0 s.h.
Total 16 s.h.

Second Semester

57-8 Electrical Circuits 3 s.h.
53-22 Principles of Design II 3 s.h.
53-23 Design of Steel Structures 3 s.h.
57-71 Principles of Hydraulics 2 s.h.
53-76 Principles of Geology 2 s.h.
53-91 Professional Seminar: Civil Engineering 0 s.h.
*Humanities or social science elective 3 s.h.
Total 16 s.h.

SINIOR YEAR

First Semester

53-56 Reinforced Concrete Structures 3 s.h.
53-40 Transportation Engineering 3 s.h.
53-79 Hydraulic Design 3 s.h.
53-61 Computers in Civil Engineering 3 s.h.
53-91 Professional Seminar: Civil Engineering 0 s.h.
53-150 Principles of Environmental Engineering 3 s.h.
Technical elective 3 s.h.
Total 18 s.h.

Second Semester

53-64 Project Design and Management in Civil Engineering 3 s.h.
53-85 Experiments in Civil and Environmental Engineering 3 s.h.
53-91 Professional Seminar: Civil Engineering 0 s.h.
Technical electives 6 s.h.
*Humanities or social science elective 3 s.h.
Total 15 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 in research, teaching, or practice in the areas of consultation, environmental engineering, and scientific and industrial waste processes, waste disposal, environmental engineering, and environmental engineering.

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 resource modeling, and processes for water supply, pollution control, and waste management. Environmental science and technology work is conducted with partners including the Iowa Institute of Hydraulic Research, the Center for Forest and Regional Environmental Research, the Center for Research in Environmental Science, the Hazardous Substances Research Center, the Center for Environmental Science, and the Office of Environmental Health; and the Urban and Regional Planning Program. New areas of interdisciplinary focus include groundwater contamination, biotechnology,
global climate change, and hazardous waste.

Hydraulics, Hydrology, and Water Resources

The hydraulics, hydrology, and water resources curriculum are associated with the Iowa Institute of Hydraulic Research, a research organization that is world renowned. Senior staff throughout the institute are professors in the program, who 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 digital computers in mathematical modeling and in the acquisition and processing of data. The Computation Laboratory is being expanded to provide the high-speed computer facilities and advanced graphics and communication software, complementing the hydrology and water resources curricula.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula are designed primarily toward computer-based structural design, optimization, and mechanics of materials. Special strengths exist in the areas of structural optimization, computational mechanics, concrete and prestressed concrete structures, and behavior, ice engineering, and constitutive equations for metals and geotechnical materials. Course work and research in structural design and optimization, dynamics of structures, finite element techniques, and mechanics and biomechanics, concrete structures, and continuum mechanics, and plasticity are available.

Transportation

The transportation curriculum includes work in planning, design, construction, the operation of transportation systems and facilities, cooperative relationships with the graduate programs in urban and regional planning and transportation studies. Cooperative research is conducted with the National Park Service, the Center for Simulation and Design Optimization, the DOT Midwest Transportation Center, the Iowa Driving Simulator, and the National Advanced Driving Simulator (the "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 of the student's choice. Graduate programs in advanced technical branches in industry, government, and consulting engineering firms, or they may continue their graduate study. Current and present 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 technical environmental engineering and science curriculum.

Students, with the approval of their advisor, develop a plan of study that must include special requirements of their chosen curriculum. All degree candidates are expected to have a 3.60 minimum grade-point average. They must pass an oral examination and, in some program options, a written examination.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements for semester hours of course work vary among the specialty areas. Candidates usually need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation that constitutes to knowledge in the field. In some specialty areas, a qualifying examination is required for those 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 roughly half of the student's course work has been completed.

The program culminates in a final examination, in which candidates must successfully defend their dissertation.

Doctoral candidates are expected to maintain a 3.20 minimum grade-point average throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in applied mathematical sciences ("Degree of Mathematical Science") in the College of Liberal Arts section of the Catalog.

Admission

Each applicant for admission is expected to have a cumulative 2.75 minimum undergraduate grade-point average, 3.50 in the major field. For admission to candidacy for the doctoral degree, the minimum grade-point average is 3.50 based upon previous graduate work. Applicants whose grade-point averages are slightly lower are considered to correspond to comparable admission possibilities. A Graduate Record Examination General Test score of at least 1300 (verbal and quantitative) is recommended. Lower GRE General Test scores are considered with other evidence of academic promise (recommendations, 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 academic achievement and research interest.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The engineering education course 57.5 Engineering 57.5: Introductory engineering requires at least 75 credit hours, including 33 credit hours in the College of Liberal Arts section of the Catalog. Students in the course learn word processing on Mainframe microcomputers and elementary techniques using Hewlett-Packard workstations. Under students in the course Principles of Design 52.7 The use of computer hardware and software is available through CAEN.

In addition to information on advisories collected by other engineering departments, the subsection for each of the departments.

Required and Elective Course Laboratories

53.36 Soil Mechanics Laboratory (3 s.h.): equipped for determining the classification, shear strength characteristics, soil properties, and strength of soils.

53.65 Environmental Science and Environmental Engineering (3 s.h.) consists of laboratory work in the biological, environmental, and social sciences, offered at the University Laboratory, the Environmental Engineering Laboratory, and the undergraduate Structures-Mechanics/Materials Laboratory as a survey course with hands-on experimentation.

53.150 Principles of Environmental Engineering (3 s.h.) conducted at the University Water Treatment Plant and Iowa City Waterworks Plant for demonstrations of unit operations and processes of water and wastewater treatment, and applications in environmental chemistry and microbiology.

53.153 Environmental Chemistry Laboratory (3 s.h.) provides a laboratory course for environmental and water and wastewater quality tests are conducted at the Environmental Engineering Laboratory, and bench and unit processes are operated and analyzed.

53.155 Laboratory Waste Water (4 s.h.) typical aquatic organisms are studied in the Environmental Engineering Laboratory and several field exercises are conducted in the nearby lakes, wetlands.
Graduate Facilities and Laboratories

Environmental Engineering and Science Laboratories

Research in environmental engineering is conducted in the Department of Civil and Environmental Engineering Laboratories of the University of Maine. The Western Environmental Engineering Laboratory of the University Water Treatment Plant is part of the Environmental Engineering Research Laboratory and is equipped with a wide variety of equipment for wastewater treatment.

The Environmental Engineering Research Laboratory is equipped for bench and pilot-scale chemical and biological analyses of water and provides space for low bench and pilot-scale studies. The entire 9,000 managerial-agenda-per-day University Water Treatment plant is especially designed to enable wide use of treatment operations and processes.

The Hydrogeology Research Laboratory is 2,100 square-foot facility designed specifically for research into the properties and behavior of chemical components in 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 as 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 constantly passed through high efficiency filters connected to a central exhaust system, which maintains level and traceable moisture.

Analytical equipment found in the laboratory includes a Perkin-Elmer Series II gas chromatograph with flame ionization and phosphorous detectors and with thermal conductivity and electron capture detectors; a Perkin-Elmer Series I gas chromatograph with a flame ionization detector; an Spectro-3000 flame photometer; a Perkin-Elmer atomic absorption spectrophotometer with graphite furnace, flame, and mercury hydride system; a Beckman 5100 series atomic absorption spectrophotometer; and a Millenik Spectrophotometer 600 UV-visible spectrophotometer.

Three of the rooms in the laboratory are equipped for electrochemical studies capable of maintaining temperatures from 0 to 60 degrees. These rooms are used for research into redox and biosensor reactions.

The laboratory has a 500-square-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 is used for research into the properties and behavior of chemical components in environmental concern.

The laboratory is equipped with the U.S. EPA Region I and II Water Quality Research Center, the Center for Hazardous Substances Research, the Institute for Risk Management and the National Environmental Research Council.

HYDRAULICS, HYDROLOGY, AND WATER RESOURCES LABORATORIES

The teaching and research facilities of the research staff closely connected to the research and technical activities of the Iowa Department of Hydraulics Research, which also includes a Compositional Laboratory for Hydrodynamics and Water Research.

The institute houses some of the most modern research facilities in the world, including a 30-foot towing tank, several hydraulic flumes and tidal tanks, a dispersive foam, a wave tank, three sets low-temperature flow facilities for investigating the physics of ice, and an experimental hydraulic flume for modeling of atmospheric flow, a wind tunnel, a computer-controlled data handling system, 2-D and 3-D laser doppler anemometers for measuring turbulence and flow processes, and extensive computational facilities.

The Compositional Laboratory for Hydrodynamics and Water Resources utilizes a Heindel Spectrograph that can be used to measure column lengths, which makes level input and traceable moisture.

STRUCTURES, MECHANICS, AND MATERIALS LABORATORIES

Laboratories for optimal design, plasticity, soils, structural testing, and rigging engineering are available for testing and research. The optimal design laboratory has a state-of-the-art network of lightweight equipment for testing and other applications. It is used to conduct research on modern construction methods for design optimization of complex structural systems. The plasticity, soils, and structural laboratories are equipped for the determination of physical and mechanical properties of concrete, soils, and structures. The plasticity laboratory is equipped with a computer-controlled MTS servohydraulic test system, material testing machine, and a creep machine.

The ice engineering research lab has an uniaxial MTS testing machine withload and displacement acquisition system. There is a 10-ton Hydraulic testing apparatus, for testing all the climate conditions. A large room for preparation of ice samples, a variety of other equipment is available to study the mechanical properties of ice and ice/structure interaction processes.

COURSES

Spesial

1200 Cooperative Education Assignments

Assignments in Civil Engineering

1300 Computer Engineering

The computer engineering program is designed to allow students to specialize in one or more fields of computer science. The program is designed to be flexible and accommodating to students' needs.

1310 Computer Engineering: An Introduction to the Design of Computer Systems

The program emphasizes the design of computer systems, including computer architecture, computer networks, computer hardware, computer software, and computer programming.

1320 Computer Engineering: Software and Systems

The program emphasizes the design of computer systems, including computer hardware, computer networks, computer software, and computer programming.

1330 Computer Engineering: Advanced Topics

The program emphasizes the design of computer systems, including computer hardware, computer networks, computer software, and computer programming.

1340 Computer Engineering: Special Topics

The program emphasizes the design of computer systems, including computer hardware, computer networks, computer software, and computer programming.

1350 Computer Engineering: Special Topics

The program emphasizes the design of computer systems, including computer hardware, computer networks, computer software, and computer programming.

1360 Computer Engineering: Special Topics

The program emphasizes the design of computer systems, including computer hardware, computer networks, computer software, and computer programming.
# Undergraduate Program

The undergraduate program provides a strong background in both 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, control, communication, electronics, and applied physics.

## Curriculum

* The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:13</td>
<td>Principles of Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>10:3</td>
<td>Accelerated Biology</td>
<td>4</td>
</tr>
<tr>
<td>22M:35</td>
<td>Engineering Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>57:5</td>
<td>Engineering I</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
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### Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:18</td>
<td>Principles of Chemistry I</td>
<td>2</td>
</tr>
<tr>
<td>22M:36</td>
<td>Engineering Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>22M:40</td>
<td>Atlanta Agents for Engineers</td>
<td>2</td>
</tr>
<tr>
<td>20:17</td>
<td>Introductory Physics I</td>
<td>4</td>
</tr>
<tr>
<td>57:6</td>
<td>Engineering II</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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### SOPHOMORE YEAR

<table>
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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>22M:41</td>
<td>Differential Equations for</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Engineers</td>
<td></td>
</tr>
<tr>
<td>20:16</td>
<td>Introductory Physics II</td>
<td>4</td>
</tr>
<tr>
<td>57:7</td>
<td>Statics</td>
<td>2</td>
</tr>
<tr>
<td>57:8</td>
<td>Electrical Circuits</td>
<td>3</td>
</tr>
<tr>
<td>57:9</td>
<td>Thermodynamics I</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

### Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>22M:42</td>
<td>Vector Calculus for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>57:12</td>
<td>Linear Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>57:13</td>
<td>Computers in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>57:18</td>
<td>Principles of Electronic</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Instrumentation</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
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### JUNIOR YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>55:17</td>
<td>Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>55:19</td>
<td>Introduction to Digital</td>
<td>3</td>
</tr>
<tr>
<td>55:21</td>
<td>Thermostatics</td>
<td>3</td>
</tr>
<tr>
<td>55:22</td>
<td>Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>55:29</td>
<td>Professional Seminars:</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Electrical Engineering</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

## Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>55:33</td>
<td>Introduction to Software</td>
<td>3</td>
</tr>
<tr>
<td>55:56</td>
<td>Communication Systems</td>
<td>3</td>
</tr>
<tr>
<td>55:60</td>
<td>Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>55:79</td>
<td>Electromagnetic Theory</td>
<td>3</td>
</tr>
<tr>
<td>29:83</td>
<td>Modern Physics</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

### SENIOR YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>55:72</td>
<td>Electrical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>55:68</td>
<td>Principles of Electrical</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Engineering Design</td>
<td></td>
</tr>
<tr>
<td>55:40</td>
<td>Professional Seminars:</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Electrical Engineering</td>
<td></td>
</tr>
<tr>
<td><strong>Technical Electives</strong></td>
<td>(see &quot;Technical Electives&quot;)</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

### Technical Electives

Students must choose at least two courses from the following list. Technical electives must have an engineering orientation and cannot be drawn from the social sciences, the humanities, or skills courses. Students should consult their Undergraduate Manual for details.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>55:35</td>
<td>Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>55:56</td>
<td>Power Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>55:120</td>
<td>Switching Theory</td>
<td>3</td>
</tr>
<tr>
<td>55:131</td>
<td>Introduction to VLSI Design</td>
<td>3</td>
</tr>
<tr>
<td>55:138</td>
<td>Radio Switching Digital Logic Circuits</td>
<td>3</td>
</tr>
<tr>
<td>55:139</td>
<td>Design Automation of Digital Systems</td>
<td>3</td>
</tr>
<tr>
<td>55:143</td>
<td>Power Electronics</td>
<td>3</td>
</tr>
<tr>
<td>55:142</td>
<td>Linear Integrated Electronics</td>
<td>3</td>
</tr>
<tr>
<td>55:144</td>
<td>Digital Integrated Electronics</td>
<td>3</td>
</tr>
<tr>
<td>55:146</td>
<td>Digital Signal Processing</td>
<td>3</td>
</tr>
<tr>
<td>55:148</td>
<td>Digital Image Processing</td>
<td>3</td>
</tr>
<tr>
<td>55:150</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>55:152</td>
<td>Introduction to Information</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>and Coding Theories</td>
<td></td>
</tr>
<tr>
<td>55:160</td>
<td>Control Theory</td>
<td>3</td>
</tr>
<tr>
<td>55:164</td>
<td>Computer-Based Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>55:165</td>
<td>Introduction to Robotics</td>
<td>3</td>
</tr>
<tr>
<td>55:172</td>
<td>Solid State Physical Electronics</td>
<td>3</td>
</tr>
<tr>
<td>55:178</td>
<td>Optical Signal Processing</td>
<td>3</td>
</tr>
<tr>
<td>57:11</td>
<td>Principles of Design I</td>
<td>3</td>
</tr>
<tr>
<td>57:21</td>
<td>Principles of Control I</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

## Graduate Programs

Electrical and computer engineering often curricula leading to the Master of Science and Doctor of Philosophy degrees. Theses and doctoral M.S. programs are available; either may precede Ph.D. studies. A special M.S. emphasis in software engineering will be available. Excellence in scholarship and research is stimulated by close contact with the faculty throughout the period of graduate study and through programs tailored to individual needs.

Students select an advisor and, with the advisor, plan an individual program bounded only by a few broad guidelines stipulated by the Graduate Division and by the program. Close interdisciplinary ties with other departments exist both within and outside the college, especially with the Departments of Internal Medicine, Radiology, Physics, Computer Science, Mechanical Engineering, and Biomedical Engineering. The principal areas of concentration are in 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, and acoustic optics. Investigations utilize specialized laboratories in both the Engineering Building and Van Allen Hall. 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. A plasma physics laboratory is available to support this activity. An electronic-optics and quantum optics laboratory are used to conduct graduate research in the areas of linear and nonlinear optics. This research is concerned with fundamental properties, new forms of nonlinearities, and nonlinear properties and applications of materials.

In the area of optical signal processing, projects involve the use of optical fibers and various light modulations to build special purpose analogic processors for parallel computation and signal manipulation. A small associative optical processor is being developed in the optical processing laboratory.

### Computer Systems and Software Engineering

Research emphasis in computer systems is directed toward design of highly reliable computer systems, design and testing of very large-scale integrated circuits, distributed computing, and parallel processing. Areas of interest include fault-tolerant computer design, setting of digital logic circuits, object-oriented architectures, parallel and distributed algorithms, operating systems, VLSI arrays, and optical computing. Research in software engineering is oriented toward software reliability analysis and tools for parallel software development and analysis.

The work is supported by governmental facilities including a network of DOD workstations as well as through a network connection to computers at colleges, universities, and national facilities, including CDC, the University of Texas at Austin, the Computing Center, national supercomputer centers, Federal laboratories, and facilities at other universities.

Current projects include design of easily testable, very-large-scale integrated circuits;
Signal and Image Processing

Image processing and basic and applied signal processing are areas of emphasis. A digital signal processing laboratory and an image analysis laboratory are available to support this research. The Cardiovascular Image Processing Laboratory, located in the Cardiovascular Center at The University of Iowa Health Center, is also available. Collaborative research with faculty in the Departments of Radiology, Medicine, and Biomedical Engineering is directed at quantitative analysis of medical images.

In the area of signal processing, current projects include signal processing associated with speech and hearing, echo cancellation and transmission of speech, speech processing aids for the hearing-impaired, analysis and design of efficient adaptive algorithms for signal processing, robust equalization of unknown channels, and application of neural networks to communications systems.

In the area of image processing, current projects include automatic detection of visual features using algorithms that incorporate artificial intelligence techniques, detection and tracking of cardiovascular from magnetic resonance images, analysis of cardiac motion patterns, and neural approaches to segmentation of three-dimensional binary image data for pattern recognition algorithms, and three-dimensional segmentation techniques for medical software systems using fractals. Additional work is directed at developing image formation algorithms that incorporate models of the human visual system.

Control Systems and Robotics

Current research emphasizes optimal, adaptive, digital, and stochastic control; missile-autonomous robot motion planning; and control of linear and nonlinear dynamical systems. Recent work has concerned the design of robustness and robust control of linear and nonlinear dynamical systems; the construction of cooperation among agents, the control applications of neural networks, and the use of control theory to analyze distributed computing, communications, and manufacturing systems.

Master of Science

There are two M.S. options: with and without thesis. The thesis option requires 26 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 35 semester hours of course work, with a minimum of 18 semester hours from an approved list of courses in electrical and computer engineering. M.S. semester-hour requirements do not include courses 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 35 semester-hour total. Conditions 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 doctoral members. One part of the final examination for these candidates must consist of an oral defense of the thesis. At the time of graduation, conditions for the master's degree must have acquired a 3.00 minimum cumulative grade-point average.

M.S. Subtrack in Software Engineering

The department offers an M.S. subtrack in software engineering, in both thesis and nonthesis options. Successful completion of the subtrack results in the designation "with specialization in software engineering" on the student's transcript.

The nonthesis subtrack requires completion of a minimum of 35 semester hours; the thesis option requires 40 semester hours. Both require completion of the following four software engineering core courses:

- 55:180 Fundamentals of Software Engineering
- 55:182 Software Engineering Project I
- 55:183 Software Engineering Project II

In addition, both options require completion of at least three courses chosen from the following:

- 55:131 Introduction to VLSI Design
- 55:132 High Performance Computer Architecture
- 55:133 Graph Algorithms and Computational Optimization
- 55:134 Computer Communications
- 55:123 Parallel Computing and Advanced Architecture
- 55:124 Computer Organization and Architecture
- 220:105 Advanced Operating Systems and Concurrent Programming

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 hours for additional credits and the M.S. final examination are the same as for the general M.S. program.

Doctor of Philosophy

The requirements are:

- at least 72 semester hours of credit in a coherent program acceptable to the advisor and approved by the graduate committee; and
- at least 45 semester hours of credit earned in formal courses (thesis or other independent study), including 30 semester hours from an approved list of courses in electrical and computer engineering.

Successful completion of the Ph.D. qualifying examination and successful completion of the Ph.D. comprehensive examination;
Industrial engineers have many opportunities for employment and service. In industry, government, research, and public service organizations, employment opportunities are among our most varied in the engineering field. In industrial engineering, employment positions include manufacturing engineers, systems analysts, quality specialists, operations research analysts, plant engineers, and plant managers. While most industrial engineers are employed by manufacturing firms, others work in government agencies or service organizations, such as airlines, banks, and hospitals.

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, management, economics and information systems, concurrent engineering, production, quality control, and operations research.

Industrial Engineering Curriculum

FRESHMAN YEAR

First Semester
4-13 Principles of Chemistry I 3 s.h.
Kinesio (10/2 or 10/3) 4 s.h.
22M:35 Engineering Calculus I 4 s.h.
57:5 Engineering I 3 s.h.
Humanities elective (see below) 3 s.h.
Total 17 s.h.

Second Semester
4-16 Principles of Chemistry Laboratory 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
22M:40 Matrix Algebra for Engineers 3 s.h.
29-17 Introduction to Physics I 4 s.h.
57:6 Engineering II 3 s.h.
Total 15 s.h.

SOFTMORE YEAR

First Semester
22M:41 Differential Equations for Engineers 3 s.h.
29-18 Introduction Physics II 4 s.h.
57-9 Thermodynamics I 3 s.h.
57-14 Engineering Economy 3 s.h.
Total 15 s.h.

Second Semester
22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
57:3 General Psychology (social science elective) 4 s.h.
57:8 Electrical Circuits 3 s.h.
57:15 Intermediate Seminar: Industrial Engineering 3 s.h.
Economics elective (see below) 3 s.h.
Total 16 s.h.

JUNIOR YEAR

First Semester
57:31 Manufacturing Processes 3 s.h.
57:62 Human Factors Engineering 3 s.h.
57:17 Computer in Engineering 3 s.h.
57:21 Principles of Design I 3 s.h.
Mathematics elective (see below) 3 s.h.
Engineering science elective (see below) 3 s.h.
Total 18 s.h.

Second Semester
57:91 Professional Seminar: Industrial Engineering 0 s.h.
57:31 Manufacturing Systems 3 s.h.
57:40 Ergonomic Design 3 s.h.
57:22 Principles of Design II 3 s.h.
Technical electives (see below) 6 s.h.
Total 15 s.h.

SENIOR YEAR

First Semester
57:155 Psychology in Management (social science elective) 3 s.h.
57:95 Professional Seminar: Industrial Engineering 1 s.h.
57:184 Concurrent Engineering 3 s.h.
20-171 Operations Research 3 s.h.
Humanities elective (100 level) 3 s.h.
Technical elective (see below) 3 s.h.
Total 16 s.h.

Second Semester
57:99 Professional Seminar: Industrial Engineering 0 s.h.
57:180 Operations Systems Design 4 s.h.
57:5 Quasi Course 3 s.h.
57:160 Production Systems 3 s.h.
57:3 Technical electives (see below) 6 s.h.
Total 16 s.h.

Economics Electives

Students may select from the following list. 6 h.
68-103 Microeconomics 3 s.h.
68-119 Economics of the Government Sector 3 s.h.
68-125 International Economics 3 s.h.
68-129 Economic Growth and Development 3 s.h.
68-132 Environmental and Natural Resource Economics 3 s.h.
68-135 Regional and Urban Economics 3 s.h.
68-141 Economics of American Industries 3 s.h.

Mathematics and Statistics Electives

Students may select from the following list. 3 s.h.
22M:40 Vector Calculus for Engineers 3 s.h.
22M:50 Elementary Numerical Analysis 3 s.h.
22M:50 Statistics course with advisor's approval 3 s.h.

Engineering Science Electives

Students must select one of the following courses. 3 s.h.
57:10 Dynamics 3 s.h.
57:12 Linear Systems Analysis 3 s.h.
57:18 Principle of Electronic Instrumentation 4 s.h.
57:18 Machanics of Deformation Bodies 3 s.h.
57:20 Mechanics of Fluids and Transfer Processes 4 s.h.

Technical Electives

Students must select 12 semester hours from the list below, plus 3 semester hours with consent of advisor; or 9 semester hours from the list below, plus 3 semester hour from the engineering science electives and 3 semester hours with consent of advisor. 3 s.h.
56-96 Individual Investigations 0-3 s.h.
56-132 Introduction to Industrial Robotics 3 s.h.
56-136 Artificial Intelligence in Design and Manufacturing 3 s.h.
56-163 Advanced Engineering/Human Factors 3 s.h.
56-180 Advanced Managerial Psychology 3 s.h.
56-181 Information System Design 3 s.h.
56-150 Microcomputer Applications 3 s.h.
56-153 Engineering Administration I 3 s.h.
56-155 Quantitative Investment Analysis 3 s.h.
56-156 Economic and Business Decision 3 s.h.
56-159 Quality Engineering I 3 s.h.
56-159 Quality Management and Practice 3 s.h.
56-176 Regression Analysis 3 s.h.
56-178 Digital System Simulation 3 s.h.
56-179 Contemporary Topics in Industrial Engineering 3 s.h.

Specialization in Quality Engineering

Quality engineering is a specialization in the engineering profession that is concerned with the design, manufacture, delivery, maintenance, and use of products and services over their life cycle. Good quality is the fitness of these products in service to meet customer needs. Engineers must identify and improve quality throughout all phases of the product's or service's creation and use. Quality has an economic dimension in those cycles that occur after as well as during the design, development, and manufacture of products and services. The breadth and requirements of quality engineering are similar to those of industrial engineering. Consequently, a specialization in quality engineering can be selected through the
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 flexible; the goal is excellence academic.

There are five principal areas of academic focus in the graduate program in industrial engineering: manufacturing, human factors engineering/ergonomics, engineering management, quality and production control, and operations research and applied statistics.

Manufacturing courses, devoted to the 30 credits, detail in each selected appropriate manufacturing system, including systems for processing operators, defect control strategies, and designing products and manufacturing systems. Contemporary topics in computer-based process planning, computer-aided design, computer-aided manufacturing, concurrent engineering, and applications of artificial intelligence in manufacturing are covered.

Ergonomics, or human factors studies, concentrate on applying the psychological, physiological, sociological, and organizational sciences and arts to problems in manufacturing and service systems. These problems concern fitting the people to the work and the work to the people, the tasks of the people and their roles within the organization. Courses in the 60 series cover these topics.

Engineering management courses concentrate on engineering administration, manufacturing economics, and information systems. This area is covered by courses in the 50 series.

Studies in operations research and applied statistics concentrate on statistical methods, industrial statistics, and computer sciences for modeling, analyzing, and optimizing systems. Various methodologies in this area include mathematical programming, probability and statistics, and operations research.

Students in the graduate program participate in research in the areas of their academic concentrations. Ongoing manufacturing research includes flexible manufacturing systems, design, optimization control of process, adaptive manufacturing control, parameter robotic control, and automatic pattern recognition of parts. Current research in human factors engineering/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. Other research in this area includes computer-aided problem solving, machine-human compatibility, ground vehicle control, intelligent vehicle automation, and techniques of ergonomic data collection and analysis.

Some current research in engineering management consists of information economics, resource management, concurrent engineering, and applications of artificial intelligence in manufacturing are covered.

Ergonomics, or human factors studies, concentrate on applying the psychological, physiological, social, and organizational sciences and arts to problems in manufacturing and service systems. These problems concern fitting the people to the work and the work to the people, the tasks of the people and their roles within the organization. Courses in the 60 series cover these topics.

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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 assessments of their potential contribution to the research and teaching goals of the program. Advanced graduate students also may qualify for higher stipend/research assistantships. Students should write to the chair of the Industrial engineering department for further information.

Special Facilities and Laboratories

Engineering Core
Information about laboratories diffused with core courses coordinated by other departments can be found in the Catalog section for each of the other engineering departments.

Required and Elective Course Laboratories
The laboratory occupying the north wing of the fourth floor in the Engineering Building. Most classes and seminars meet there. Faculty members who supervise the laboratories also are located there. The laboratories are described below.

INTEGRATED MANUFACTURING SYSTEMS LABORATORY
This facility has equipment that supports instructional and research needs in manufacturing operations and systems. Includes a variety of small-scale robots, automated vision and sensor devices, microcontrollers of various types, Hewlett-Packard workstations, a digital option for computer pattern recognition, a Stewart-Carman 3D robotic manipulator, a conveyor, programmable controllers, programmable computer controllers, 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 FACTOR/Ergonomics Laboratory
This laboratory facilitates human factors/ergonomics research and education. It contains microcomputers and accessories with numerous peripherals for the data collection and analysis of human performance data as well as alternate forms of information displays and human response recorders.

IOWA DRIVING SIMULATOR (IDS) LABORATORY
Many students and faculty in the engineering faculty are associated with the new ground vehicle simulator situated in the Engineering Research Facility. The facility contains a state-of-the-art computer video system for generating high-definition visual scenes, which include other moving vehicles that operate in intuitive ways. There is a Ford Taurus body in the laboratory with realistic auditory and visual sensory. The IDS is controlled by computer with power approaching a Car. The laboratory is equipped to serve as a primary training unit until the new National Advanced Driving Simulator (NADS) is completed.

COMPUTER-AIDED MANUFACTURING (CAM) LABORATORY
This laboratory is used to teach CAD (computer-aided design) and CAM programming and to set up projects to demonstrate various computer-automated manufacturing technologies. Hardware and software are available to design parts and plan processes, including generation of CNC program files.

Computer-numeric controls (CNC) Machining Laboratory
Students gain hands-on experience in programming and operating a CNC lathe and an automated storage and retrieval system in this laboratory. CNC programs can be developed through the machine control operator or downloaded via RS232c link from a programming station on the CAM Laboratory. Research studies in the machine tool runout can be designed using appropriate software for testing. An automated storage and retrieval system and robot for assembly of hydraulic components are used for testing and research projects.

Future additions to the laboratory include the purchase of a full-scale CNC machine shop, a coordinate measurement machine, and additional test, measurement, and reconditioning equipment to interface with the machine tools.

MANUFACTURING PROCESSES LABORATORY
This laboratory provides improved facilities and equipment for automated arc welding and conventional metalworking processes. Corman arc welding (CAWAM) or MIG systems are used in applications ranging from metallurgical process issues and materials to investigation of process characteristics and methods to evolving research into process technologies. A Baby welder robot simulation is also planned for the laboratory to facilitate further investigation of the metal process variables control problems and productivity issues using interactive simulation and programming techniques.

INTELLIGENT SYSTEMS LABORATORY
Hewlett-Packard workstations, IBM PC, and Multiris 3d microcomputers with enhanced disc and operating memory are housed in this laboratory. Software for design and building intelligent control systems is available, including expert system shells, IVF Expert, KXK Prolog, LISP programming languages, LISP PROCESSOR, intelligent CAD design software (Stark-Vallum), simulation software (GAM, TESS), a voice recognition system, and specialized programs for design of chemical systems.

COURSES

Spedal
55-600 Comprehensive Systems Training
9.0h
Industrial engineering students participating in the Comprehensive Systems Training Program register in this course during their sophomore period, and graduate students participate in this program during the junior or senior years.

56-101 Professional Internship in Industrial Engineering
3.0h
Presents aspects of industrial engineering performed through internships and discussion by guest speakers. Skill(s) Required: None.

56-102 Industrial Engineering-Educator Internship
2.0h
Internship training in problem-solving engineering for educators, education management, problem solving and utilization of the engineering community, science computer software, analysis of student and career issues.

Manufacturing
55-131 Process Design
5.0h
Maintenance of production (hosp bias in an industry program) involving system design and implementation, training, analysis, manufacturing, advanced control, and monitoring.

55-132 Manufacturing Systems
5.0h
Instruction in design and implementation of computer and information systems and advanced control of manufacturing (MCS) and manufacturing systems. Focuses on the development of computer-aided manufacturing and computer-aided design/development systems. Includes computer-aided manufacturing system design, computer-aided design, and computer-aided manufacturing systems.

55-133 Concurrent Engineering
5.0h
Integrating system design and product development for effective systems engineering.

55-134 Artificial Intelligence in Design and Manufacturing
3.0h
Integrating system design and product development for effective systems engineering.

55-135 Computer-Aided Design
3.0h
Integrating system design and product development for effective systems engineering.

55-136 Artificial Intelligence in Design and Manufacturing
3.0h
Integrating system design and product development for effective systems engineering.

55-137 Computer-Aided Manufacturing
3.0h
Integrating system design and product development for effective systems engineering.
Interdisciplinary team in which the mechanical engineer is an important member.

**MECHANICAL SYSTEMS**

Mechanical systems and machines are the foundations of human technology. Examples of such systems and devices are manufacturing equipment, automobiles, tractors, ships, home appliances, packaging machinery, and aircraft.

Mechanical engineers find employment opportunities in a wide variety of jobs, including those in industry, government, and education. Mechanical engineers form an integral part of most industries, including aerospace, aircraft, energy-generation utilities, automobile manufacturers, food and medical processing industries, petroleum refineries, electronics, 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 should choose social science, humanities, and technical elective courses in accordance with program guidelines. Upper-level students are required to work on group projects in a senior-level capstone design course. 58:60 Mechanical Engineering Project. Participation in established research projects may be arranged.

The undergraduate education of a mechanical engineer at The University of Iowa is based on four curriculum stems: mathematical and basic sciences; mechanical 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 mathematical and basic sciences are the engineering sciences: statics, dynamics, thermodynamics, mechanics of deformable solids, mechanics of fluids and transfer processes, material science, and computer sciences. An understanding of these sciences enables a mechanical engineer to design parts of systems, to understand the total mechanical system, to plan the production and utilization of energy, to plan and operate industrial manufacturing facilities, and to design automatic control systems for machines and other mechanical systems.

In addition to the purely mechanical engineering considerations, there are many complex issues in our modern society that involve environmental, economic, managerial, and political decision making. Therefore, mechanical engineers must possess awareness of social and humanitarian issues related to government, business, and industry, including health, safety, and ethics, environment, 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.

**JUNIOR YEAR**

**First Semester**

- 6:15 Principles of Chemistry I 3 s.h.
- 10:3 Accelerated Electric 4 s.h.
- 22:01 Engineering Calculus I 4 s.h.
- 57:3 Engineering I 3 s.h.
- Social Science elective 3 s.h.
- Total 17 s.h.

**Second Semester**

- 4:16 Principles of Chemistry Lab I 2 s.h.
- 22:06 Engineering Calculus II 4 s.h.
- 22:40 Matrix Algebra for Engineers 3 s.h.
- 29:17 Introductory Physics I 4 s.h.
- 57:6 Engineering II 3 s.h.
- Total 15 s.h.

**SOPHOMORE YEAR**

**First Semester**

- 22:42 Vector Calculus for Engineers 3 s.h.
- 29:18 Introductory Physics II 4 s.h.
- 57:7 Statics 3 s.h.
- 57:9 Thermodynamics I 3 s.h.
- 57:15 Materials Science 3 s.h.
- Total 15 s.h.

**Second Semester**

- 22:44 Differential Equations for Engineers 3 s.h.
- 57:8 Electric Circuits 3 s.h.
- 57:6 Dynamics 3 s.h.
- 57:19 Mechanics of Deformable Bodies 3 s.h.
- Humanities or social science elective 4 s.h.
- Total 16 s.h.

**JUNIOR YEAR**

**First Semester**

- 225:39 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.
- 57:28 Principles of Electronic Instrumentation 4 s.h.
- 58:51 Professional Seminar: Mechanical Engineering 2 s.h.
- Total 17 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.
- 58:51 Professional Seminar: Mechanical Engineering 2 s.h.
- Humanities elective 3 s.h.
- Total 15 s.h.

**SENIOR YEAR**

- 58:46 Thermal-Fluid Systems Design 4 s.h.
- 58:55 Mechanical Systems Design 4 s.h.
- 58:91 Professional Seminar: Mechanical Engineering 2 s.h.
- Technical electives 6 s.h.
- Social science elective (100 level) 3 s.h.
- Total 17 s.h.

**Second Semester**

- 58:60 Experimental Engineering 4 s.h.
- 58:46 Mechanical Engineering Project 3 s.h.
- Technical elective 5 s.h.
- Humanities elective (100 level) 3 s.h.
- Total 15 s.h.

**Technical Electives**

These permit students to develop a broader background and a deeper understanding in selected fields of mechanical engineering. Because most of these courses build on earlier courses in the curriculum, students' choices may result from an interest developed in the basic courses. Students should consult with and obtain approval from their academic advisor before selecting elective courses.

Guidelines for selecting technical electives are:

- A minimum of two electives from mechanical engineering courses must be taken;
- Engineering courses at the 100 level, as well as mathematics, physics, or chemistry courses at a more advanced level than those required in the curriculum, may be taken as technical electives;
- One elective course may be chosen from engineering courses that are required in another engineering curriculum;
- One course from the College of Business Administration may be elected, with the exception of accounting or economics courses numbered below 100; economic courses may be taken as social science electives; and
- A maximum of 3 semester hours of individual electives may be elected. Individual electives are not typically under-enrolled, but they may be allowed in special circumstances.

Students are encouraged to take courses in several areas to gain a broad background in mechanical engineering. The following are some technical elective courses:

**Control Systems Engineering**

- 58:131 Feedback Control Systems 3 s.h.
- 58:132 Control System Design 3 s.h.
- 58:133 Control Theory 3 s.h.
- 58:134 Computer-Based Control Systems 3 s.h.

**Mechanical Systems Engineering**

- 58:110 Computer-Aided Engineering 3 s.h.
- 58:119 Introduction to Mechanical Engineering 3 s.h.
- 58:1111 Flows of Materials and Applications 3 s.h.
- 58:113 Fundamentals of Vibrations 3 s.h.
Research

Fluid Mechanics

The graduate program in fluid mechanics provides the student with a rigorous and broad foundation in theoretical, computational, and experimental aspects of the subject. It is especially suitable for those seeking careers in teaching and/or research in academic and industrial organizations. Emphasis is on fundamental principles and techniques of solving problems in application are emphasized, with focus on the use of computer, both in the mathematical modeling of flow phenomena and in the acquisition and processing of experimental data.

Although most of the relevant courses are offered by the Department of Mechanical Engineering, students are strongly encouraged to take applied mathematics and classical mechanics courses offered by the mathematics and physics departments in the College of Liberal Arts and by other departments in the College of Engineering.

Current research projects include computational modeling of viscous and turbulent flows; vortex breakdown; unsteady flows, flow separation and control; biofluid dynamics; ship hydrodynamics; viscous flow around debris; propeller flow and propulsive-body interactions; free-surface effects; nonlinear wave theory; finite-body hydrodynamic interactions; underwater acoustics; low Reynolds-number flows; quantum flow; visualization and image processing; and heat transfer and thermal acoustics for flow analysis.

Thermal Sciences

The graduate program in thermal sciences and systems provides students with a rigorous and broad foundation in thermal and fluid mechanics, coupled with the applications of the principles of thermal and fluid mechanics to engineering, industry, and government. The program emphasizes fundamentals of thermodynamics, heat transfer, and combustion, and associated analyses, numerical, and experimental methods used in energy conversion systems. Areas of concentration include fluid mechanics, thermodynamics, heat transfer, chemical change, and combustion.

Although most of the relevant courses are offered by the department, students are encouraged to supplement them with courses from other areas, such as chemical engineering, physics, and mathematics in the College of Liberal Arts and other department in the College of Engineering, to order to balance their programs.

Current research projects include analytical, numerical, and experimental investigations of convective and conjugate heat transfer with real and surface effects in the presence of turbulent and laminar flows; shock ignition of particle-laden gases, but ignition of condensed-phase energetic materials; transition to detonation in granular materials; natural convection; turbulence as well as turbulent flow; diffusion flames, spray atomization and combustion, liquid-metal combustion, boundary-layer combustion, transport phenomena in multiphase processing, drying and solidification, porous media, double-diffusive convection, optical contrast of thermal system; experiment design, control design, and flow visualization of complex combustion processes.

Mechanical Systems

The graduate program in mechanical systems provides students with a strong background in theoretical, computational, experimental, and applied aspects of the subject and prepares them for careers in high level applied research, advanced system analysis, design, and teaching. The program emphasizes fundamental principles, techniques, and experimental methods used to analyze and design mechanical systems. Areas of concentration include machine design, optimal design, structural optimization, control systems, and fatigue and fracture mechanics.

Although most of the relevant courses are offered by the Department of Mechanical Engineering, students are encouraged to take additional courses offered by the mathematics, physics, and other departments in the College of Liberal Arts and by other departments in the College of Engineering.

Current research projects include state space theory of structural optimization, design sensitivity analysis of rigid and flexible mechanical systems; computer-aided design; computer-aided engineering visualization and communications; geometric modeling; mechanical system modeling; integrated computer system; structurally induced vibrations; finite element modeling; finite element modeling; and life predictions under constant and variable amplitude loading.

Master of Science

The M.S. program requires a minimum of 30 semester hours of graduate work. Required courses. Students may choose either a thesis or a non-thesis program. Universities, 6 and no more than 9 semester hours of credit for the thesis research and writing may be counted toward the 30-semester hour requirement. Each student determines a plan of study in consultation with an advisor and submits the plan to the department chair for approval.

To earn the M.S., the student must maintain a 3.0 minimum grade-point average on graduate work used to satisfy the degree requirements and must be successful in the final examination. The examination is administered by the student's committee, which consists of at least three faculty members, including all students with a previous appointment in the Department of Mechanical Engineering.
The requirements for the M.S. may be completed within one calendar year. However, students with satisfactory grades 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 bachelor’s 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 six course work hours are completed. In any case, the comprehensive examination should be taken not later than 28 months after the first registration in the Ph.D. program. To be admitted to the comprehensive examination, the student must be of good academic standing and must be recommended by his or her advisor. The exam is administered by the student’s committee. Admissions to Ph.D. candidacy is recognized upon successful completion of the comprehensive examination.

Depending on the requirements, the exam usually has only one and does not delay 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 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 minimum grade point average on all previous college-level work and minimum Graduate Record Examination (GRE) General Test scores of 550 verbal and 750 quantitative. For students whose native language is not English, a minimum Test of English as a Foreign Language (TOEFL) score of 550 may be substituted for the GRE verbal requirement. Students may, under exceptional circumstances, be considered for conditional admission with a limited number of courses with a maximum of 12-credit hours or TOEFL test scores. The student with conditional status must achieve regular status within one semester of completing the semester after admission. To satisfy this requirement, the applicant’s admission must include an agreement to submit up to 72-hour credits. ECE students must engage in a minimum of 9 semester hours at the University of Iowa.

Students who have submitted their completed research for the dissertation may be considered for conditional admission. The dissertation must be completed within a maximum of 2 years after the first registration in the Ph.D. program.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The laboratories for fluid flows and transport processes consist of a wind tunnel, a water flume, a water main, and a dye tracer system.

Engineering majors may take elective courses in fluid mechanics, heat transfer, and solidification studies, and various optical measurement systems. Laser-based diagnostics (e.g., interferometric, fluorescence, and confocal) are available for the study of complex fluid motion. Heat transfer, and combustion.

Several laboratories are served by computer-based instrumentation systems. Workstations connected to ACAR and the Wogg Computing Center are available for data collection and analysis.

Fatigue and Fracture

Experimental facilities for the fatigue and fracture mechanics segment of the department include access to a scanning electron microscope, a high computer data-acquisition system, a test area, and a machine for testing fatigue test equipment, and equipment for characterizations of material properties.

The mechanical engineering laboratory for undergraduate students with exposure to contemporary sensors, signal conditioners, measurement control, and computer-related data acquisition systems.

The laboratory for mechanized engineering facilities is equipped with data acquisition stations to provide such facilities as optical, pressure, and temperature sensors. The laboratory's data acquisition stations are also equipped with data acquisition stations to provide such facilities as optical, pressure, and temperature sensors.

Graduate Facilities and Laboratories

Fluid Mechanics

The program in fluid mechanics in collaboration with the Iowa Institute of Hydraulic Research, which houses some of the most modern research facilities in the world, is available to graduate students.

The equipment available to graduate students includes several wind tunnels and hydraulic flumes, an environmental flow facility, a 1.5-knot towing tank, two special low-speed flow facilities for investigation of ice phenomena, pulsating flow systems, water tunnel flow, and water and laser-assistance systems, and computer-based data acquisition systems.

In the department, the test facility is a free visualization and imaging system with CCD camera, a high-speed wind tunnel, a water tunnel, and a water-tunnel laser-assistance systems. The test facility is also equipped with computer-based data acquisition systems.

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Mechanical Systems
Simulation activities in the mechanical systems area are usually carried out in the Computer-Aided Design (CAD). The center's computing facilities include an Alliant FX/2800 supercomputer, an Alliant FX/8 small computer, and a large heterogeneous network of workstations ranging from desktop systems to high-performance SP-2 graphics workstations, and other related computer equipment. Center researchers also have access to the Stirling Simulator (S3), the most advanced facility of its kind in the United States. The S3 is composed of an Envi and Sutherland CTS Image Generator and Gould microcomputers, (IBM 4341) and 1320 real-time computers, and the center's Alliant FX/2800.

Courses
59-00 Cooperative Education Training
Aerospace: Mechanical Engineering
5.1 Astronautical engineering students participating in the Cooperative Education Program register for 10-credit hours. Work similarity among different projects is the principal feature in this program. A student participating in the cooperative education program is not eligible for the cooperative education program.

5-00-100 Engineering Mechanics
4.1 Principles of classical mechanics; fundamentals of continuum mechanics; analysis of stress, strain, and deformation of solids; vibration, including the equations of motion; statics, dynamics, and kinematics; mechanics of materials, including the properties of ductile and brittle materials; and the analysis of stress and strain in solids and structures.

5-00-200 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-300 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-400 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-500 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-600 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-700 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-800 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-900 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1000 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1100 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1200 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1300 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1400 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1500 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1600 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1700 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1800 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-1900 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2000 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2100 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2200 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2300 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2400 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2500 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2600 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2700 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2800 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-2900 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3000 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3100 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3200 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3300 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3400 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3500 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3600 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3700 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3800 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-3900 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-4000 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-4100 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-4200 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.

5-00-4300 Mechanical Engineering
3.3 Analysis and design of heat engines; power generation; steam, gas, and diesel engines; refrigeration, air conditioning, and heat pumps; geothermal energy; solar energy; and wind energy.
Mechanical Engineering

5.9.29 Fluidic Dynamics and First-Order Transients

5.10.14 Pressure Measurement

5.10.15 Correlation Materials

5.10.16 Advanced Computer Aided Design

5.10.17 Computer Aided Design

5.10.18 Pressure Measurement

5.10.19 Thermodynamics

5.10.20 Heat Transfer

5.10.21 Computer Aided Thermal Systems

5.10.22 Advanced Topics in Thermal and Fluid Engineering

5.10.23 Mechanical Systems

5.10.24 Heat Transfer

5.10.25 Heat Transfer

5.10.26 Mechanical Systems

5.10.27 Correlation Materials

5.10.28 Computer Aided Design

5.10.29 Fluidic Dynamics and First-Order Transients

5.10.30 Heat Transfer

5.10.31 Advanced Topics in Thermal and Fluid Engineering

5.10.32 Mechanical Systems

5.10.33 Mechanical Systems

5.10.34 Mechanical Systems

5.10.35 Mechanical Systems

5.10.36 Mechanical Systems

5.10.37 Mechanical Systems

5.10.38 Mechanical Systems

5.10.39 Pressure Measurement

5.10.40 Heat Transfer

5.10.41 Heat Transfer

5.10.42 Heat Transfer

5.10.43 Heat Transfer

5.10.44 Heat Transfer

5.10.45 Heat Transfer
Graduate College

Dean: Leslie Stone
Associate Dean: James F. Winstead, Charles A. Sloan
Graduate student: Carmen Cruz
Criminal Justice and Corrections—MA**

Defense—MA, Ph.D.

Dental Hygiene—MS**

Dental Public Health—MS.

Economics—MA, Ph.D.

Epidemiology—MA, M.A.T., Ed.S., Ph.D.

Electric and Computer Engineering—M.S., Ph.D.

Endocrinology—MS

English—MA, M.A., M.F.A., Ph.D.

Entomology—MA, Ph.D.

Environmental Science—MA, Ph.D.

Epidemiology—MA, Ph.D.

Evolutionary Biology—M.A., Ph.D.

Finance—MA, Ph.D.

Geography—MA, M.A., Ph.D.

German—MA, Ph.D.

Geology—MA, Ph.D.

History—MA, Ph.D.

Hospital and Health Administration—M.A., Ph.D.

Human Nutrition—Ph.D.***

Industrial Engineering—M.S., Ph.D.

Intelligence—MA, M.A.

Latenet—MA

Leisure Studies—MA.

Library and Information Science—M.A.

Linguistics—MA, Ph.D.

Mass Communication—Ph.D.

Mathematics—M.A., Ph.D.

Mechanical Engineering—M.S., Ph.D.

Microbiology—M.S., Ph.D.

Molecular Biology—Ph.D.


Neuroscience—Ph.D.

Nursing—MA, Ph.D.

Operative Dentistry

Oral and Maxillofacial Surgery—M.S.

Ornithology—M.S.

Pediatric Dentistry—M.S.

Periodontology—Ph.D.

Pharmacology—M.S., Ph.D.

Pharmacy—M.S., Ph.D.

Pharmacology—MA, Ph.D.

Physical Education—M.S., Ph.D.

Physical Therapy—MA, M.J.T., M.S.

Physics—M.S., Ph.D.

Physiology and Biophysics—M.S., Ph.D.

Political Science—Ph.D.

Preventive Medicine and Environmental Health—MA, Ph.D.

Psychology—M.S.

Radiation Safety—M.S., Ph.D.

Religion—MA, Ph.D.

Remote—MA

Science Education—M.S., Ph.D.

Social Studies—M.A., M.S., Ed.D.

Social Work—M.S.W.

Sociology—MA, M.S., Ph.D.

Spanish—M.A., Ph.D.

Speech Pathology and Audiology—M.A., Ph.D.

Statistics—M.S., Ph.D.

Stomatology—M.S.

Theatre Arts—M.F.A.

Urban and Regional Planning—MA, M.S.

"degree offered without their

**Designated as a 'professional' degree

***Student may suspended
Quality Management and Productivity

The interdisciplinary program in Quality Management and Productivity leads to an M.S. degree in compliance with the Department of Statistics and Actuarial Science, Industrial Engineering, and Management Sciences. The program seeks to train students who are interested in total quality management of products and services, in the area of operations and management of transportation and distribution. (Details are provided in the College of Liberal Arts section of the Catalog.)

Transportation Studies

The Program in Transportation Studies is an interdisciplinary, nondegree-granting program that coordinates coursework leading to student certification in the areas of transportation planning, analysis, and operation of transportation systems. Students participate in the program to complement work toward a graduate degree in civil and environmental engineering, geography, or urban and regional planning. When the graduate degree is awarded, an entry is made on the student's transcript certifying completion of the Program in Transportation Studies. For further details, see "Transportation Studies" in the College of Liberal Arts section of the Catalog.

Urban and Regional Planning

The graduate program in urban and regional planning is a professional master's program that prepares students for positions in government to work toward planning graduate degrees in urban and regional planning. A number of joint degrees are offered. For further details, see "Urban and Regional Planning" in the College of Liberal Arts section of the Catalog.

Research Resources

The major and diverse research activities of the University are constantly assisted by the Office of the Vice President for Research, which has a complete staff at the University Graduate College. For further information, see "Research Administration and the Special Services" in the College of Liberal Arts 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 Admissions" in "Rules and Regulations of the Graduate College" in this section of the Catalog. The following are the primary sources of assistance:
Graduate College

TEACHING AND RESEARCH ASSISTANTSHIPS
Available in most departments, students usually receive stipends of $9,000. Teaching assistantships are competitive and are awarded for the academic year. Stipends are on a per-semester basis and are reflected in the schedule of tuition and fees. In most departments, students are eligible for tuition assistance. Graduate students in departments where tuition is charged are eligible for tuition assistance. Stipends are on a per-semester basis and are reflected in the schedule of tuition and fees.

IOWA ARTS FELLOWSHIPS
For first-year University of Iowa graduate students entering M.F.A. programs, stipends are $12,000 for the academic year, with tuition paid, for as many as two years. Stipends are paid in two equal installments. Stipends are on a per-semester basis and are reflected in the schedule of tuition and fees. Stipends are on a per-semester basis and are reflected in the schedule of tuition and fees.

IOWA INTERNATIONAL FELLOWSHIPS
One-year awards for doctoral students new to graduate study in the College of Liberal Arts and Sciences. Stipends are $12,000 for the academic year, with tuition paid, for as many as two years.

GRADUATE OPPORTUNITY FELLOWSHIPS
For first-year graduate students in underrepresented ethnic minority groups, a one-year stipend of $12,000 for the academic year.

THE UNIVERSITY OF IOWA FELLOWSHIP PROGRAM
For first-year graduate students entering doctoral programs, stipends are $12,000 per year for a maximum of four years, with tuition paid. Stipends are on a per-semester basis and are reflected in the schedule of tuition and fees. Stipends are on a per-semester basis and are reflected in the schedule of tuition and fees.

SCHOLARSHIPS
Scholarships provide partial support for full-time graduate students in the Graduate College.

GRADUATE FELLOWSHIPS
Graduate fellowships provide $9,000 for the academic year.

OTHER SOURCES
The Graduate College provides fellowships to students in approved programs.

GRADUATE STUDENT SENATE
The Graduate Student Senate is the University's graduate student body representative organization. Representations of graduate student concerns and issues focus on the Graduate College, the Office of the Dean of the College, and the University's graduate council. The Graduate Student Senate comprises the elected graduate student body and the Graduate College.

Graduate College on matters pertaining to the college.

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 I. Admission to the Graduate College

A. APPLICATION PROCEDURE
All students seeking to register for the first time in the Graduate College of the University of Iowa must complete a formal admission statement from the director of admissions. Applications may be submitted by 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 for 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
Applicants prior to consideration for admission must take the General (Advanced) 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 admittance decisions are complete, with the exception of scores on the GRE or the GMAT, may delay taking the GRE or the GMAT until after the decision on admission is made. Stipends are on a per-semester basis and are reflected in the schedule of tuition and fees. Stipends are on a per-semester basis and are reflected in the schedule of tuition and fees.

C. ENGLISH FOR FOREIGN STUDENTS
Prior to consideration for admission, foreign student applicants whose native language is other than English must pass TOEFL. (Tests 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, Australia, or New Zealand. The examination is given at various times of the year and is in many centers throughout the world. Inquiries should be addressed to the TOEFL Educational Testing Service, Princeton, New Jersey 08541.

Foreign students transferring from unfinished degree programs of other universities in the United States who have not taken the TOEFL or who have taken it recently may take the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of those students being placed the TOEFL score. 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 XI, Master's Degrees," "Section XII, Two-Year Degrees," and "Section XIII, Doctor's Degrees."

F. DECLARATION OF MAJOR AND MINOR
Every graduate student must file a declaration of major and minor with the Dean of the Graduate College. The declaration of major and minor must be filed within one semester of the student's admission to graduate study. The declaration of major and minor must be filed within one semester of the student's admission to graduate study. The declaration of major and minor must be filed within one semester of the student's admission to graduate study.

G. STATUS UPON ADMISSION
All students admitted to the Graduate College are admitted as " Probationary Students." Individuals who wish to continue beyond the probationary period must consult with their department to determine whether they are to be admitted to the Graduate College.

H. CONTINUATION AND PROGRESS
Students who do not maintain satisfactory progress toward the degree of Master of Science, Master of Arts, or Doctor of Philosophy are subject to immediate withdrawal from the Graduate College.

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Y. CONTINUATION AND PROGRESS
Students who do not maintain satisfactory progress toward the degree of Master of Science, Master of Arts, or Doctor of Philosophy are subject to immediate withdrawal from the Graduate College.

Z. CONTINUATION AND PROGRESS
Students who do not maintain satisfactory progress toward the degree of Master of Science, Master of Arts, or Doctor of Philosophy are subject to immediate withdrawal from the Graduate College.
average of at least 2.50 (3.00 for doctoral student) and acceptance by the major department, or be dismissed.

3. Special—Students with a valid bachelor's degree and a minimum grade point average of 2.50 are required for admission to the Graduate College. Registration as a special student is allowed for only one semester or one summer session. Registration for any subsequent session, including another summer session, a special student must file an application and be admissible 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 semester.

M. 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 minimum requirements. For nonresident 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, the student may be granted admission

Examinations above a point to be

secondary by the Graduate College dean, his or her papers shall be forwarded to the department concerned and for more than 2.50 and publish the record.

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 recommended. This is not a minimum grade-point average for the undergraduate and graduate work combined. Departments, or committed in charge of undergraduate degree programs, may, and often do, have higher 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 Laws Code: Board of Regents section of the Catalog.

I. ADMISSION OF FACULTY MEMBERS TO GRADUATE STUDIES

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 enroll the Graduate College department in which he or she seeks to become a student. The department in which he or she seeks to become a student may be the department of registration or a closely related department. Such petitions must have prior approval of the department of appointment, dean of the college of appointment, the department to which study is to be pursued, and the Graduate Council. Students who are admitted to and enroll in the Graduate College, but who then fail to register for a period of 90 days or more, must apply for readmission. Their acceptance is dependent upon departmental approval for the session in which readmission is desired. Consideration of the application for readmission will be governed by the departmental and Graduate College admissions standards in effect at the time of reapplication.

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. The registration limit is subject to a total of 16 semester hours. This equivalence applies to the inclusion 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 class attendance only is four hours. The 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. Full-time students are required to carry at least nine semester hours during a semester as a condition of their appointments. One-half-time and one-third-time students are permitted to register for the maximum 15 semester hours per semester or 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 listed 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 seek for limited or no credit is subject to the consent of the advisor and the approval of the dean of the Graduate College.

D. REDUCED SCHEDULES FOR TEACHING AND RESEARCH ASSISTANTS AND OTHER APPROPRIATES

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 nine semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirds- and three-quarter-time appointees may register for no more than nine semester hours during a semester or five semester hours during the eight-week summer session.

4. Seven-eighths-time appointees may register for no more than seven semester hours during a semester or four semester hours during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for no more than the semester hours during a semester of three semester hours during the eight-week summer session.

6. RETROACTIVE REGISTRATION

A form of retroactive registration is permitted.

F. REGISTRATION FOR PART OF A SESSION

A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of the session (not including the examination period) in the term. The trial registration may not exceed the fifteen semester hours permitted for a semester and the eight-week summer session permitted for the eight-week summer session. Registration after the last day of the third week of a semester or the third day of the second week of a semester is permitted only in courses involving special projects, readings, individual study, thesis, or research, with the signed approval of the instructor concerned and the Graduate College dean.

G. EXTRAULINARY REGISTRATION

After admission to a departmental program in the Graduate College, registration for work done off campus may be accepted for resilience credit under the following circumstances:

1. Travelling Scholl Program of the Committee in Institutional Cooperation (see "Section III.")

2. Research at approved locations under the direction of members of the graduate faculty of the University of Iowa

3. Registration as part of a regularly scheduled course or research program.

4. Courses taught off campus by members of the graduate faculty (see "Section XI."

5. "Section XX.C. for minimum semester hours required on campus for the master's and doctor's degree.

6. Resilience graduate credit from another Iowa Regents' university (see "Section XI.

7. As many as nine semester hours of graduate work taken in the Graduate College at another Iowa Regents' university, provided the work is of acceptable quality and the student's major department for the degree.

8. An additional 15 semester hours of graduate work taken in the Graduate College at another Iowa Regents' university, provided the work is of acceptable quality and the student's major department for the degree.

9. Extramural registration does not count toward residency requirements. In the following circumstances:

1. Course work transferred from another institution.

2. Correspondence courses.
H. EXTREMAL FEES AND FINANCIALS
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 L.Y." for specific fees applicable to postgraduate comprehensive examinations, which need not be confused with extramural residencies for residence credit.)

I. CORRESPONDENCE COURSES
Correspondence courses 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 may 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 completed a bachelor's degree but before enrolling in the Graduate College may be counted toward an advanced degree with approval of the Graduate College dean upon recommendation of the chairperson of the major department. A graduate student may not register for correspondence courses without the approval of the executive officer 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 in 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 counted for taking courses primarily for graduate students to audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

K. DROPPING OF COURSES
All graduate students who drop courses after the deadline established by the dean of the Graduate College for each session and published by the registrar shall receive the grade of "W" unless the entire registration is withdrawn. This regulation may be waived by the Graduate College dean upon 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 reenter.

Section III. Travelling Scholar Program
A. PURPOSE
The program, under the auspices of the Committee on Graduate Cooperation, representing 11 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.

section IV. Academic Standing, Probation, and Dismissal
A. NONDOCTORAL STUDENTS
A student, except one on conditional status, shall be placed on probation if, after completing eight semester hours of graduate work, he or she has a cumulative grade-point average on graduate work done at the University of Iowa falls below 3.00. If, after completing eight semester hours of graduate work at the University, his or her grade-point average remains below 3.00, he or she shall be placed on probation to reenter; otherwise, the student shall be restored to good standing.

B. DOCTORAL STUDENTS
A doctoral student on regular status shall be placed on probation if, after completing eight semester hours of graduate work, the student's cumulative grade-point average on graduate work done at the University of Iowa falls below 3.00. If, after completing eight semester hours of graduate work at the University, the student's cumulative grade-point average remains below the required level, the student shall be dropped from the program and denied permission to reenter unless he or she applies and is accepted for a nondegree or certificate program. If, after completing the second eight semester hours, the cumulative grade-point average is at least 3.00, the student is restored to good standing.

C. RESTRICTION ON STUDENTS ON PROBATION
A student on probation shall not be permitted to take comprehensive or final examinations leading to any degree or certificate, nor may the student receive any graduate degree or certificate.

D. DEPARTMENTAL REGULATIONS AND DISCIPLINARY INFORMATION
In addition to the above, each departmental requirement, departments may establish further requirements, which do not limit the individual student's standing with regard to probation and dismissal. To this end, each departmental 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. Copies are to be available for students in the departmental office. Auditors of courses shall make all the available efforts to inform students. Subsequent changes in standards of performance, if communicated by the department to each student, shall be deposited in the office of the Graduate College.

E. CONDITIONS
OCW Travelling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its right to accept or reject any student who wishes to study under its auspices.

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A student, except one on conditional status, shall be placed on probation if, after completing eight semester hours of graduate work, he or she has a cumulative grade-point average on graduate work done at the University of Iowa falls below 3.00. If, after completing eight semester hours of graduate work at the University, his or her grade-point average remains below 3.00, he or she shall be placed on probation to reenter; otherwise, the student shall be restored to good standing.

B. DOCTORAL STUDENTS
A doctoral student on regular status shall be placed on probation if, after completing eight semester hours of graduate work, the student's cumulative grade-point average on graduate work done at the University of Iowa falls below 3.00. If, after completing eight semester hours of graduate work at the University, the student's cumulative grade-point average remains below the required level, the student shall be dropped from the program and denied permission to reenter unless he or she applies and is accepted for a nondegree or certificate program. If, after completing the second eight semester hours, the cumulative grade-point average is at least 3.00, the student is restored to good standing.

C. RESTRICTION ON STUDENTS ON PROBATION
A student on probation shall not be permitted to take comprehensive or final examinations leading to any degree or certificate, nor may the student receive any graduate degree or certificate.
deparment regulations described above. See "Section N.D.2."

5. GRADE RECOVERY FOR DEPARTMENTAL DISMISSAL
Questions involving judgment of performance will not be reviewed beyond the departmental level. If, however, the student feels there has been some breach of procedure or procedure irregularity concerning dismissal, the student may request a review by the Graduate Council. This review may be conducted by the Graduate College staff alone, or at a 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 or 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. Credits for these courses toward an advanced degree at Iowa State will have the approval of the major department and the dean of the Graduate College.

B. RESIDENCE TRANSFER CREDIT
After admission to a departmental program in the Graduate College, residence graduate credit from another Iowa State resident may be counted as resident credit at this student's university, provided such work is acceptable to the student's major department as part of the department's distribution of its applicability toward the degree. See "Section II.C.7.1."

C. TRANSACTION IN CREDIT
For courses or semesters in independent study, thesis, and research, an instructor may report as credit 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 rating scales as the Graduate Council may authorize from time to time to meet group or individual situations. The value of such credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

E. WITHDRAWAL OF REGISTRATION AND PROPORTIONAL CREDIT FOR STUDENTS ENTERING MILITARY SERVICE
1. Students who leave within the first six weeks of the semester receive no credit.
2. Students who leave within the period of seven to nine weeks receive one-half credit.
3. Students who leave within the period of 10 to 12 weeks receive two-thirds credit.

4. Grade reports for the one-half and two-thirds credit periods: If instructor reports grades only as satisfactory or unsatisfactory, (b) credit is to be assigned on the basis of total registration minus work and semester. (c) Courses are to be counted toward specific degree requirements only after the student returns and then only with the department's approval.

5. Students who complete the twelfth week receive full credit.

6. Grade reports for the full-credit period: (a) Grades are to be reported only at the end of the semester. (b) Credit is to be reported a specific courses. (c) In each instance, the instructor reports the student's credit, grade, and date of withdrawal. No credit is granted unless the student's work is satisfactory at the time of leaving.

7. The amount of credit in thesis and research registration is to be reported in the register to individual instructors on the basis that the work has been satisfactory at the time of leaving.

8. The amount of credit in thesis and research registration is to be reported in the register to individual instructors on the basis that the work has been satisfactory at the time of leaving.

Section VI. Marking System

A. Harris carrying graduate credit

B. Harris carrying no graduate credit
These are D+, D, D−, F, F−, incompletes, W-withdrawn without credit, R—registered, and U—unsatisfactory.

C. Audit
It is assigned when a student registered for zero credit attends an area of instruction, normally for one semester of effort only. It requires permission of the Graduate Council to allow more than one semester of attendance. An instructor may request a permission to make an audit credit in the register.

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 apply. See next paragraph, "E.

E. Incomplete
Incomplete 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. Registration for thesis, research, or independent study, the satisfactory/unsatisfactory grades may be apply. See next paragraph, "E.

F. Incompletes
No grade in incompletes is to be used. If a student fails to complete the course, the instructor must report the incomplete grade.

G. Credit sequence point average
This is granted only upon graduate work graded A− or A, A− or A, A or A−, B− or B, B or B−, C− or C, or C− or C. The grade point average for the cumulative, average is assigned as to not exceed 4.00.

Section VII. Graduate Appointments

A. Scholarships
Scholarships are competitive and are awarded on merit.

B. Eligibility for graduate scholarships and fellowships include: (a) registration in the Graduate College, (b) cumulative grade-point average a 18.00, (c) a chair of rating of 30.00, (d) a CMB score of a 30.00, (e) a CMAT score on a 30.00, (f) a satisfactory rate of progress in completing the program for the degree.

C. Inferences
Inferences will be drawn 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 without reference to the comprehensive examination. The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive examination 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. Fellowships must be registered in full-time students. The primary purpose of the awards is to support an advanced student to complete her or his dissertation or creative project and take the degree. Other terms of the award will be established by the Graduate College in consultation with the Graduate Council.

C. FACULTY RESEARCH ASSISTANTSHIPS

Faculty research assistants 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 to research. Not more than 20 hours of service per week are required of a half-time assistant. Other part-time service is rated 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 must pay the Graduate College the same fees that their own fees. Graduate appointments beginning in the summer semester are required to register in the Graduate College upon recommendation of the appropriate 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 recommendation and/or a letter concerning the student's qualifications.

D. GRADUATE ASSISTANTSHIPS

Graduate students may be appointed as graduate assistants or as other titles in instructional appointments such as demonstrators or assistants for college teachers. In order to achieve both status, a scholarly graduate student who shows exceptional promise as a teacher are selected for graduate assistantships. All appointments are made by the dean of the appropriate college in consultation with the departmental deans.

E. ELIGIBILITY FOR SCHOLARSHIPS, FELLOWSHIPS, AND RESEARCH ASSISTANTSHIPS

Scholarships, fellowships, 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 may be terminated in the event of a satisfactory period for the appointment to the Graduate College by the director of the administration.

F. DISMISSAL OF ASSISTANTS

A uniform policy defining procedures to be followed in the dismissal of assistants has been approved by the Board of Regents. Copies of this policy are available in the office of the Graduate College dean.

G. CREDIT

No academic credit is allowed for the teaching or research service for which the student receives payment as a graduate or a faculty research assistant.

H. LOANS

Graduate students requiring financial assistance may apply for loans in the Office of Student Financial Aid. See "Student Financial Aid" in the Learning at Iowa section of the Catalog.

I. OTHER FORMS OF SUPPORT

Many departments offer financial assistance in the form of traineeships, part-time employment on research projects, or part-time teaching. Inquiries should be addressed directly to the major department.

J. RESEARCH SCHOLARSHIPS AND POSTDOCTORAL FELLOWSHIPS

These provide for independent research. Appointment is made through the Office of the Vice President for Academic Affairs.

Section VIII. Advanced Programs Offered in the Graduate College

The major areas in which the Graduate College offers degree programs include "Advanced 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 advanced degree under the register not later than ten weeks after the start of the semester or semester after the part of the last semester in which the degree is to be conferred. The student must have the application signed by his or her advisor. Failure to do so in the time prescribed by the deadline will result in postponement of graduation in a subsequent semester.

B. ENROLLMENT IN FINAL SESSION

The student must be enrolled during the session in which the degree is to be conferred but may withdraw from the University campus during that session. Students may satisfy this requirement by registering for independent study, research, or those according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for the comprehensive examination described in "Section III.E" if such registration is appropriate. Master's candidates who have completed all work except the final examination may register for 090: Master's Final Registration at the rate of $2.50 per quarter credit hour for the comprehensive examination and four credits are equivalent to the "postcomprehensive examination" if such registration is approved. Registration in a correspondence course will not satisfy this requirement. During enrollment, the student must pay tuition fees at the rate of 50% of the advanced degree while enrolled in the advanced degree while enrolled in the degree program.

Section X. Master's Degrees

A. KINDS OF DEGREES

Master's programs requiring a minimum of 30 semester hours taken in the Master of Arts degree, Master of Science degree, Master of Business Administration degree, Master of Social Work, Master of Fine Arts in Teaching degree, and such other master's degrees as are approved by the graduate faculty. See also "Section IV.D. Departmental Regulations and Disenrollment of Students on Incomplete Information."

B. MAJOR AND RELATED FIELDS

The plan of study should provide for reasonable concentration in the major field of interest and to the study of the major department. Each program shall have subjects from other departments.

C. REQUIREMENT OF ADMISSION

A total of 30 semester hours required for the degree, at least 24 semester hours must be completed under the supervision of the University of Iowa, after admission to a departmental program in the Graduate College. Various forms of extramural registration may quality toward fulfillment of this 24-hour residence requirement (see "Section III.C. Extramural Registration") as well as regular registration. In addition, at least eight semester hours on campus are required, except for those doing 500 level or higher programming which course sufficient interaction between the student and the graduate faculty and has been awarded an extramural registration.

D. ELIGIBILITY FOR ADMISSION

Credit for courses in a master's degree dating back more than five years from the semester 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 "duly military service."

E. LIMIT ON PROFESSIONAL COURSES

Work taken by a student in the Colleges of Dentistry, Law, or Medicine while employed for a professional degree may be credited to a graduate program leading to a master's degree if it is shown that the student has earned a bachelor's degree or has completed work equivalent to a bachelor's
degree at The University of Iowa. The work accepted for the master's degree must be directly related to the student's major field of study in the Graduate College and be approved as a part of the plan of study by the student's advisor and the major department. Work completed wile registered for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for nondegree students in the Graduate College only when the student is registered in an appropriate joint degree program.

G. TWO MASTER'S DEGREES

The granting of this university of two master's degrees simultaneously or in succession requires the satisfaction of all requirements for each degree. Including two theses where a thesis is required for each, and two examinations, a minimum combined total of 60 semester hours of graduate credit.

H. MASTER'S DEGREE WITH THESIS

Not more than nine semester hours' credit for thesis research and writing shall be counted in satisfying the 30-semester-hour minimum requirement. The thesis may be a scholarly study or an artistic production. One copy of the thesis, complete and in final typed form, must be presented to the Graduate College for a check of formal characteristics not later than four weeks before the graduation date on which the degree is to be conferred. See the Graduate College Thesis Manual. After approval by the Graduate College and by the thesis committee, the thesis may be deposited with the Graduate College not later than seven days before graduation. The thesis committee shall consist of at least three members of the graduate faculty and may not be identical to the final examination committee. See "K. Examining Committee.""}

I. MASTER'S DEGREE WITHOUT THESIS

A master's degree without thesis consisting of at least 30 semester hours of graduate study, may be awarded upon the completion of a curriculum prescribed by a department and approved by the Graduate Council.

J. FINAL EXAMINATION

The requirement for all master's degrees includes a final examination which, at the discretion of the major department, may be written or oral. 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 examining committee, 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.

Upon recommendation of the 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, music composition, sculpture, dramatic production, music performance, composition, performance, dramaturgy, poetry, fiction, and translation. Central to the program, the thesis may consist of a novel, a painting, a play, a musical composition, a dance performance, or any other written 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 XII. B. Plan of Study"; "C. Major and Related Fields"; "D. Reduction of Credit"; "H. Master's Degree with Thesis"; "F. Final Examination"; and "E. Examining Committee."

B. SPECIALISTS IN EDUCATION DEGREE

This degree is granted upon completion of a prescribed two-year, postbaccalaureate program designed for specialists preparing themselves professionally in such fields as teaching, administration, and supervision, and special services. The minimum of 60 semester hours required for the degree, at least 34 semester hours must be completed in residence at the university, of which 15 semester hours must be earned while the student is on campus within the 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 course fields, supervised experience, and elective 6 semester hours of research culminating in a written work.

Courses successfully completed ten or more years prior to the final examination will be evaluated by the major department in order to determine the quality of credit that shall be allowed for such work. Limitation of such old work shall be waived in the case of an equivalent 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 prescribed for the one-year master's degree as in "Section X.B. Plan of Study"; "C. Major and Related Fields"; "F. Final Examination"; and "E. 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 addition.

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 specific 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 must 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 year, a course of advanced study in part or parts of the graduate curriculum in social work may be admitted, upon recommendation of the faculty of the school, to qualify for the M.S.W. degree on less than 60 semester hours. Transfer of record for these more than 60 semester hours of graduate work by approval of the Board of Regents.

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. Once class work and field practice are arranged sequentially, students can enter the School of Social Work only in August. For other requirements, see "Section XII. B. Plan of Study"; "D. Reduction of Credit"; "F. Final Examination"; and "E. Examining Committee."

Section XII. Doctor's Degrees

A. CHARACTER OF DEGREE

The Graduate College awards two doctorates, the Doctor of Philosophy and the Doctor of Musical Arts. The doctorate is the highest degree awarded by the university. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior competence in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.
G. LIMIT ON PROFESSIONAL COURSES

Work taken by a student in the Colleges of Dentistry, Law, or Medicine when 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 a professional course of study that is 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 area of study must be approved by the student's advisor and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will not be counted as part of the thesis academic year which must be spent in residence as a doctoral student on the campus of this university.

H. COURSE PROGRAM FOR ALUMNI AND DOCTORAL DUELLIS

These students who, in order to continue their teaching during the doctoral degree may be a joint program for the master's and doctor's degree. The master's degree may be completed with the comprehensive examination for the doctorate for those candidates. The examining committee will report 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. Some departments that do require competence in one or more foreign languages establish standards in the written and oral levels of competence, as well as methods of testing. Specific requirements will be listed in the descriptive statement of each department in the catalog. Departmental executive officers are responsible for reporting completion of requirements to the graduate division of the College of Liberal Arts and Sciences. Specifications of departmental requirements in foreign languages are found in the Graduate College catalog and may be changed upon the initiative of the department.

J. COMPREHENSIVE EXAMINATION

The candidate must pass a comprehensive examination consisting of written or oral parts or both at the discretion of the major department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study, and the approval of the dean of the Graduate College. A student must be registered in the Graduate College at the time of the comprehensive examination, which must be taken two months prior to the session prior to the session in which the examination is to be taken. Determination of the candidate's mastery of the major and related fields of study, including the mode of research in which the candidate has been engaged.

The comprehensive examination is not a doctoral 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 by the doctoral degree.

The comprehensive examination will be evaluated by a committee of three members of the department, not included in the committee, and is required as a condition of the award of the degree. The comprehensive examination is conducted by the department. The student must pass the comprehensive examination in order to be eligible for the degree. The comprehensive examination is not a preliminary examination. The student must pass the examination within one year after the degree has been awarded. A candidate may retake the examination not more than two years after the first examination. The course work required to pass the comprehensive examination at the doctoral degree must be completed no later than four months after the first examination. The comprehensive examination may be repeated only once at the option of the department.

III. POSTCOMPREHENSIVE RESEARCH/Thesis A candidate who obtains a departmental degree after passing the comprehensive examination until the degree is awarded must be a student in the graduate college. The student must have completed the comprehensive examination and have been designated as an interdisciplinary student. The student may not register for the summer session in the degree until the student has been designated as an interdisciplinary student. The student must be accepted for admission to the graduate college. The student must be registered in the Graduate College at the time of the comprehensive examination, which must be taken two months prior to the session prior to the session in which the examination is to be taken. Determination of the candidate's mastery of the major and related fields of study, including the mode of research in which the candidate has been engaged.

The comprehensive examination is not a doctoral 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 by the doctoral degree.

The comprehensive examination will be evaluated by a committee of three members of the department, not included in the committee, and is required as a condition of the award of the degree. The comprehensive examination is conducted by the department. The student must pass the comprehensive examination in order to be eligible for the degree. The comprehensive examination is not a preliminary examination. The student must pass the examination within one year after the degree has been awarded. A candidate may retake the examination not more than two years after the first examination. The course work required to pass the comprehensive examination at the doctoral degree must be completed no later than four months after the first examination. The comprehensive examination may be repeated only once at the option of the department.
1. DISCUSSION 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 (Summer excluded) following the session in which the final examination is passed. Failure to meet this deadline will require resubmission of the dissertation.

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 Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University's Main Library.

If the dissertation is in some respects better (e.g., in depth of research) than the dissertation the librarian will help the student and faculty adviser work on an appropriate level of presentation. Each copy is on file at the University Main Library.

Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

II. DISCUSSION FOR THE MASTER'S DEGREE

A nonrefundable discussion fee is charged each candidate to cover one cost of printing the dissertation and abstract.

III. 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 recitation of the procedures followed—and intensive questioning on areas of knowledge constituting the immediate context of the investigation.

The final examination may be held not later than three weeks after the date of the examination announcement in which the student prefers to test. The student must pass the comprehensive examination not later than one year after completing the comprehensive examination. Failure to meet this deadline will result in a resubmission of the dissertation 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 "Appendices." locality.)

Final examinations for the doctorate are open to the public. Members of the faculty of the

Graduate College are specially 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 one year after the examination. The final examination will be evaluated by satisfactory or unsatisfactory. Two unsatisfactory votes will result in the candidate being asked to resubmit the dissertation. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for resubmission within the one year's deadline. The examination may be repeated only once, at the option of the major department.

6. 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. Upon recommendation of the major department, special topics departments may require the dean's permission to replace one of the five members of the Graduate Faculty by a non-graduate faculty of professional rank from any other 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 examining 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 committee. A voting member may be added at the discretion of the Graduate College dean.

Section XIII. Exceptions

Pertinent to these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Courses

000-000 Ph.D. Professional Development 0 s.h.
001-001 Master's Postgraduate Education 0 s.h.
001-101 Graduate Student Leadership 0 s.h.
002-022 Graduate Student Leadership 0 s.h.
002-030 Graduate Student Leadership 0 s.h.
002-040 Graduate Student Leadership 0 s.h.
002-050 Graduate Student Leadership 0 s.h.
002-060 Graduate Student Leadership 0 s.h.
002-070 Graduate Student Leadership 0 s.h.
002-080 Graduate Student Leadership 0 s.h.
002-090 Graduate Student Leadership 0 s.h.
002-100 Graduate Student Leadership 0 s.h.
002-110 Graduate Student Leadership 0 s.h.
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002-860 Graduate Student Leadership 0 s.h.
002-870 Graduate Student Leadership 0 s.h.
In makeup for a University Theatre production.
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, through familiarity with the influence of legal principles and the operation of legal institutions is an important component.

The University of Iowa plans equal emphasis on developing: fundamental lawyer's skills and an appreciation of the role of law and lawyers in society. These objectives are best achieved through an educational program that creates active student participation in the learning process and creates regular opportunities for individuals and small groups to confront challenging questions on human rights which are genuinely interested in each student's professional development.

The University of Iowa College of Law confines 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 full-time to the pursuit of the legal profession. For this reason, students are expected to pursue their law degree 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 attend for fewer than 10 semester hours per semester. Students who believe they fall into this category should contact the dean's office before registering for classes.

Entrance Dates

The college offers two starting dates to entering students: late May or the beginning of the fall semester (the beginning of the fall semester). Most students elect to enter 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 entrance class may number up to 45. Students entering May are usually a fall semester of work in the first two summer sessions, and if they remain on the accelerated track by attending summer school in the subsequent summer, they can graduate nine months earlier than would otherwise be possible. Thus, the accelerated students who begin law school in May 1993 might graduate in August 1993. Students who begin school in the accelerated program, however, are not required to continue in an accelerated track, but may switch to the regular three-year sequence of study. Both the accelerated and regular programs consist of 90 semester hours of required and elective courses. All entering students are expected to take all courses designated as first-year courses and may not register for different courses or fewer semester hours without permission of the dean or the dean's representative. No student may take more than 10 semester hours per semester or 12 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 upperclassmen meet from June to July in each summer course. The program is designed to provide extensive law education opportunities. Students may register for either 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 between the court no more than 60 days after beginning law school. Details are available from the dean's office or from the clerk of the Iowa Supreme Court.

Program of Study

To be eligible for a law degree, a student must receive course credit for 90 semester hours; take and complete all required courses; satisfy the writing requirements of the bar exam; satisfy the referees' requirements; and achieve a cumulative grade-point average of at least 3.00. courses totaling at least 10 credit hours must be taken this summer session. The bar exam is administered in the spring semester of the second year of study.

First-Year Coursework

Development of professional skills begins in the first year with emphasis on careful reading, effective writing, legal research, and argumentation. Students concentrate on developing analytical skills (for example, reading and understanding judicial opinions) and gain a sense of the role of legal institutions in society. First-year coursework is as follows:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>195 Introduction to Legal Reasoning</td>
<td>1.5</td>
</tr>
<tr>
<td>Fall</td>
<td>112 Contracts and Sales Transactions</td>
<td>3.5</td>
</tr>
<tr>
<td>Fall</td>
<td>124 Criminal Law</td>
<td>3.5</td>
</tr>
<tr>
<td>Spring</td>
<td>91 132 Property</td>
<td>3.4</td>
</tr>
<tr>
<td>Spring</td>
<td>91306 Torts</td>
<td>3.4</td>
</tr>
<tr>
<td>Spring</td>
<td>91104 Civil Procedure</td>
<td>2.5</td>
</tr>
<tr>
<td>Spring</td>
<td>91165 Constitutional Law</td>
<td>3.5</td>
</tr>
<tr>
<td>Spring</td>
<td>91121 Contracts and Sales Transactions II</td>
<td>3.5</td>
</tr>
<tr>
<td>Spring</td>
<td>91156 Property II</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Legal Bibliography

Students who enter law school in May take all of the above over the summer sessions and two regular academic semesters plus 91.310 Appellate Advocacy I and 1 to 3 semester hours of electives. Entering first-year students are expected to take all first-year courses and may not register for different courses or fewer semester hours without permission of the dean.

FIRST-YEAR SMALL-SECTION PROGRAM

One of the distinctive benefits of legal education at the University of Iowa is the first-year small-section program, which integrates traditional Socratic or lecture-style instruction into small, student-taught sections. Each small section consists of approximately 20 section. The program's purpose includes careful development of each student's skills in legal analysis, argumentation, research, and writing.

In the fall semester, section instructors assign students a specific topic. The instructor's syllabus is divided into sections of approximately 50 students. In the spring (for accelerated students), each section includes approximately 20 students. The subject matter of the small-section courses varies from year to year and is selected according to the wishes of every course in the first-year curriculum.

In the small-section course, students are given a range 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-year seminar small section. The additional semester hour allows 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 the development of writing, interviewing, counseling, drafting, trial practice, advocacy, and litigation. They also concentrate coursework on legal writing and research opportunities in particular areas of interest.

Very few common requirements exist in the second and third years. All students must take 91.320 Appellate Advocacy I in the second year before graduation. All must take 91.232 Constitutional Law II and 91.308 Professional Responsibility.
Law

Writing Requirement

All students must earn free writing credits in order to graduate. They earn one of the credits with satisfactory completion of 912-101 Appellate Advocacy I. The remaining free writing may be earned through any combination of courses and activities that carry writing credit, including seminar papers, seminar and discussion courses, independent research projects, 911-400 Advanced Legal Research, 911-411 Legal Clinics, 911-412 Client Counseling Board, 911-420 Legal Issues, 911-421 Legal Writing, 911-422 Legal Writing II, 911-423 Legal Research, 911-424 Legal Research and Writing, 911-425 Legal Research and Writing II, and 911-426 Legal Research and Writing III. Students may also earn free writing credit for any other courses that carry writing credit.

Credit for Independent Study

Independent study may not be used to earn free writing credits. Students who wish to complete independent study must first obtain permission from the department chair. The written proposal must be submitted to the department chair for approval.

Credit for Legal Internships

Legal internships are available to students who wish to gain practical experience in the legal field. The internship program is designed to provide students with an opportunity to gain practical experience in the legal field. Students interested in participating in the internship program should contact the dean of the College of Law for more information.

Joint Law and Graduate Degree Program

The College of Law and the Graduate College have developed a joint law and graduate degree program that allows students to pursue graduate degrees in addition to their law degree. The joint degree program is designed to provide students with the opportunity to pursue both a law degree and a graduate degree in a related field. Students interested in the joint degree program should contact the dean of the College of Law for more information.

Law Students' Council

The Law Students' Council is an organization of law students who work to improve the law school experience. The council is composed of elected student representatives who work to represent the interests of the law student body. The council is an active and important part of the law school community, and students are encouraged to become involved in the council's activities.

Legal Clinics

The College of Law offers a number of legal clinics that allow students to gain practical experience in the legal field. These clinics provide students with an opportunity to work on real-world legal cases and to develop their legal skills. The clinics are open to all law students and are staffed by faculty members and law school staff.

Legal Writing

Legal writing is an important skill for all law students and attorneys. The College of Law offers a range of legal writing courses that are designed to improve students' writing skills. These courses cover a variety of topics, including legal research, legal analysis, and legal writing techniques.

Law in International and Comparative Law

The College of Law offers a number of courses in international and comparative law. These courses provide students with an opportunity to learn about the legal systems of other countries and to develop an understanding of how these systems differ from the American legal system. The courses cover a range of topics, including comparative law, international law, and the legal systems of specific countries.

Legal Research

Legal research is an important skill for all law students and attorneys. The College of Law offers a range of legal research courses that are designed to improve students' research skills. These courses cover a variety of topics, including legal research techniques, legal citation, and legal writing techniques.
Financial Aid

The College of Law administers an extensive financial aid program designed to help students meet their educational expenses while attending law school. Most aid is from federal, state, and private sources.

Two different loan programs are awarded directly by the college through its admissions office. Federally backed Perkins Loans and Iowa Law Foundation Loans, which are awarded to students matriculating at the College of Law. Both loans are awarded on eligibility determined by the Federal Student Aid Handbook. The college also offers a limited amount of scholarship money, awarded on need and merit. For more information, contact the Office of Student Financial Aid.

A limited number of Merit Scholarships are awarded without regard to need. Funds generated through private gifts, are offered to students who demonstrate the strongest credentials. Recipients are identified by the admissions committee and are informed of their status at Merit Scholarships when they are admitted to the College of Law.

Selected Scholarships

Adams-Cobb Law Scholarship Fund: for second- or third-year law students, preferably from the metropolitan area.

P. Arnold Dauw: awarded on the basis of merit and need.

B.J. Fairbanks: for students displaying a strong academic record, personal achievement, and the potential to contribute significantly to the legal profession.

J.P. Lathrop: awarded to Iowa residents with financial need who plan to practice in Iowa.

E.A. McDermott International: for third-year students specializing in international law.

O.K. Paton Memorial: for students who have demonstrated excellence in community service.

Luzelle and Walter Stewart Fund: for needy and deserving students at the College of Law.

J.ault, W. H.L.: for students who were born in or who completed grades 1-12 in Iowa, and who earned a bachelor's degree from the University of Iowa or who earned an Iowa high school diploma, with priority given to persons in the seventh judicial district.

Assistantships

Many faculty members at the college hire research assistants at a modest hourly salary.

Out-of-state resident students receive in-state graduate student teaching assistantship support. All students may receive a 50% tuition discount for 10 hours per week of teaching assistantship work.

Employment

Law students may obtain part-time positions at the law school in a number of different programs. Law professors frequently undertake research assistants. The law school employs a part-time telephone counselor to assist law students in finding employment opportunities. The law school maintains a list of part-time student employment opportunities available to the law school.

Admission

Applications for admission must be made to the dean of the college of law within a number of different programs. Law professors frequently undertake research assistants. The law school employs a part-time telephone counselor to assist law students in finding employment opportunities. The law school maintains a list of part-time student employment opportunities available to the law school.

Admission:

Applicants for admission must have earned a bachelor's degree from an accredited college or university prior to beginning work in the University of Iowa College of Law. The services that College of Law graduates may be called upon to perform are varied, and the possible fields of endeavor are broad and diverse. The college prescribes no uniform undergraduate program for those planning to enter law school. With the assistance of faculty advisors, each student should develop an undergraduate program that explores and cultivates that student's particular intellectual interests.

Iowa strongly endorses the three basic objectives recommended by a committee of the American Bar Association: the need for a full life through intellectual education, the need for greater understanding of human institutions and values, and the need for greater power in solving. Anyone thinking of attending law school should keep these objectives in mind while planning an undergraduate course of study.

The application's recommendations emphasize that students possess a broad and varied background for law school. Students are urged not to sacrifice the broader perspective for detailed specialization.

Application Procedures and Materials

All materials must be received by the University of Iowa Director of Admissions by March 1. Submitted after that date will be considered on a space-available basis.

An application fee of $20 must accompany each application unless the applicant's undergraduate degree was to be conferred by the University of Iowa, Iowa City. Students from disadvantaged backgrounds who cannot afford the fee should apply for waiver.

Application materials, including the SAT/LSAT registration packet, may be
obtained by writing to the Director of Admissions, The University of Iowa.

LAW SCHOOL APPLICATION MATCHING PLAN
The LSAT/ULSA registration packet includes Law School Application Matching Forms, without which the University cannot request the applicant’s LSAD report from Law Services. To avoid processing delays, applications should enclose the matching form with their application materials.

Since it takes approximately three weeks from the time the University requests the LSAD report until it arrives, applicants should send matching forms and accompanying materials well in advance of the March 1 deadline.

TRANSCRIPTS
Applicants are responsible for submitting an official transcript from each college or university they have attended to Law Services, Box 2090, Iowa City, IA 52242-0090. Each applicant who accepts admission to the College of Law must have transcripts showing completion of degree with the University’s Office of Admissions. This is in addition to the LSAD report.

LAW SCHOOL ADMISSION TEST
Applicants for admission must take the Law School Admission Test (LSAT) administered by Law Services. The test is given several times each year and may be taken at numerous locations in the United States and abroad.

Applicants are urged to take the test during the fall preceding the fall semester or summer session for which they are applying. The February test date is the last one on which the administration committee can consider an applicant for a deferred admission. The following summer or fall, that test date may put the applicant at a disadvantage for admission, since it only meets the requirements for at least five weeks for the law school to receive test results.

Students whose native language is not English must take the Test of English as a Foreign Language (TOEFL).

ADMISSION: Admissions are by the law school; decisions are granted in exceptional circumstances.

DEPOSIT
Applicants accepted before April 1 must make a nonrefundable deposit of $50 by April 1. Those accepted after April 1 must make the deposit within two weeks of notification of acceptance. The deposit need not be made if a satisfactory financial aid application is under active consideration. However, the deposit is due within two weeks after action is taken on the financial aid application. For those who enroll, the deposit is credited to the first semester bill. Applicants who fail to make the deposit by the specified time forfeit their place in the entering class.

ACADEMIC POLICIES

Residence Requirements
To satisfy the academic residency requirements, students must complete 90 weeks of class during which they are enrolled for a minimum of ten class hours per week. Part-time credit is earned pro rata when fewer than ten hours are taken.

Full-residency credit is earned only when a student enrolls for ten or more class hours during the term and earns credit for at least 60 semester hours. During the summer term, full-residency credit is earned only when a student enrolls in a minimum of 60 semester hours for each summer session attended.

Transfer Credit
No more than two semesters of residence (30 weeks of full-time residence) and no more than 30 semester hours may be transferred from another law school. No credit is transferable for any course in which a grade lower than C is earned. Grades received at another law school are not counted in calculating the weighted cumulative grade point average.

Courses Taken Prior to Admission to the College of Law
Except for transfer students from other law schools, students must not receive credit toward residency requirements for courses taken prior to admission to the College of Law. They may also not receive credit toward the 90-semester-hour requirement for the J.D. by taking non-law graduate courses before being admitted to the College of Law. This applies to all law students, including those enrolled in joint degree programs with the Graduate College.

With approval of the dean and in consultation with the faculty admissions committee, students may count toward the J.D. up to 6 semester hours that they earned in law courses taken at the college or at another institution while they were graduate students of another discipline. However, if the courses were taken prior to admission to the College of Law, they do not count toward the 90 semester hours required for graduation. If the student is a J.D.-M.L.S. student, the number of hours that can be counted toward graduation will be determined by the college’s policies in effect at the time of admission.

Courses Taken Outside the College of Law
Students who take courses outside the College of Law must first obtain permission from the student dean. If special permission of the instructor is required in the course catalog, the student must seek 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 academic competence of an attorney or broaden the student’s understanding of law, the legal process, or any particular legal subject. More information about limitations on accreditation of non-College of Law courses is available from the registrar’s office.

Externships
Students may be able to arrange externships for academic credit with certain nonprofit organizations and government agencies. Most externships are fulfilled 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 paper in the spring. 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 Elkhart, 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 normally is the highest. No numerical credit is given for grades below 60.00 or for grades of "F".

Numerical grades may be translated into letter grades as follows.

62-65 = A
66-69 = B+
70-73 = B
74-77 = B-
78-81 = C+
82-85 = C
86-89 = D-
90-93 = D
94-99 = F

Professors may distinguish students for cause or for whom grades in appropriate academic conduct, for example, plagiarism. Such reasons are subject to appropriate due process.

With the Dean’s permission, a student may make a course in which he or she has received a failing grade. The second grade is recorded either as "pass" in grade of 65 or higher or "fail" and is not used in computing the student’s cumulative grade point average.

The course grade received for the course remains on the transcript and is used in computing the grade-point average.

If the course being taken as a "pass" and the student designates the section in which the student will be assigned.

The facility 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 the second year courses.

Pass/Fail Grades
For students taking courses pass/fail, the "pass" supervisor or instructor is required to assign a numerical grade (i.e., between 59 and 55) or failing academic performance. Individual faculty
members may allow students to withdraw rather than receive a failing grade.

Mislabeled Grading Marks
Marks other than "pass," "fail," and numerical grades are as follows:

"W" means withdrawn. It causes no course or residency credit and is not used in computing the cumulative grade-point average. A grade "I" may be reported only in exceptional cases and only if the unfinished part of the work is small and it is unfeasible for reasons acceptable to the instructor, and if the student's standing in the course is satisfactory. Students must enroll an semester by completing the unfinished work during their next period of residence.

Class Ranking
Students in the top ten percent in each class may be informed of their exact rank; grade-point average at the 89.5 percentile and 92.5 percentile are noted.

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, undergraduates students, the same system is used, based on the expected graduation date.

Release of Transcripts
A student's grades are not given to persons outside the registrar's office, including prospective employers, without written permission of the student.

Class Attendance and Preparation
Students must be regular and punctual in attending classes and must be prepared to participate in class discussions. Students may be dropped from a class at the discretion of the instructor, for excessive absence or marked lack of preparedness. 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 number 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 schedule one only per semester with permission of the instructor. Students usually reschedule exams on the semester ending immediately following regularly scheduled exams. Whenever possible, the dean sets aside four days as an upland 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 the disadvantage. Disadvantages include, but are not limited to, a physical or a learning 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. Students seeking additional time must make a request to the registrar's office at least two weeks before the end of a grading period.

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, especially in headship class, they are encouraged to distribute written notices of their policies during the first week of class. A student who, after two weeks, elects to drop a course for reasons not related to hardship may not receive credit in a course in a later semester without the instructor's permission.

Students who wish to drop a non-class during the first week may do so prior to the distribution of the problems and the finalization of participants in their course. After the problem has been distributed, only the faculty advisor may authorize a drop and then only upon show of good cause.

Withdrawal
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 complete with other students for the year in which they wish to return. The reasons for the withdrawal and the quality of work done prior to withdrawal or Allow to return is 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 academic advising office (if they wish to re-enroll). Students must enroll immediately after 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.

Academic Advising
Academic Advising Office
Academic Advising provides students with academic advising, assistance with academic progress and problems, and the advising and academic counseling of students in the College of Law after?paying tuition are entitled to a pro-rata refund.

Audit
Students may audit any class with the instructor's permission, provided the class is not filled within the registration period.

Student Conduct
Students are expected to act in a manner appropriate at a professional level. 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
Academic Advising provides academic counseling and academic advising services. The academic advising office is responsible for maintaining the academic standards of the college and coordinating the activities of the academic advising office.

Assistant Dean for Student Affairs
The assistant dean for student affairs helps students with the academic advising process and scheduling of the registrar's courses. The assistant dean also counsels students on academic and personal matters when the assistant dean is not available.

Faculty Advisors: Each faculty member advises one or two students on academic and personal matters.

Small School Instructors: Small school instructors advise students in their small sections, during their first year of study.

Ombudsperson: Each year or two tenured faculty members are selected by the faculty. The ombudsperson's role is to provide a non-judicial mechanism for students who feel that their rights have been violated.

Registrar: The registrar is responsible for checking student records and keeping them up to date. The registrar's office is responsible for maintaining the academic standards of the college and coordinating the activities of the academic advising office.

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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 College of Medicine, Dentistry, 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. Two of the most outstanding programs: physicians update their knowledge and skills through in-depth, short courses, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a statewide educational health-care resource.

Beyond its academic responsibilities, the only college in Iowa that offers a complete M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health-care services. Its faculty members serve on and serve on state and regional health planning boards, 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 novel multidimensional systems programs of education for physicians assistants, medical technologies (with tracks in radiologic and biotechnical), psychological therapies, and nuclear medicine technologies.

Medical and associated medical science students have several opportunities to gain clinical experience in physicians' offices and community hospitals. Medical students in the College often serve part-time residency-affiliated residency programs in the city throughout the state. The College provides and sponsors experimental programs that encourage an active involvement of medical students in 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 College of Medicine meets the requirements of all state and federal authorities. All students and graduates of the College of Medicine are subject to the rules and regulations of all professional activities administered by the College of Medicine.

Faculty

Nearly all College of Medicine faculty members are full-time instructors in research and teaching, and some are part-time instructors in research and teaching. Many have earned national and international honors.

Graduate Programs

The college offers programs leading to graduate degrees through the College of Medicine in anatomy, physiology, microbiology, hospital and health administration, human nutrition, pharmacology, physiology, radiology, preventive medicine and environmental health, and radiation biology. In addition, graduate degree programs leading to a master's degree are offered in pathology and physical therapy.

Medical Scientist Training Program

An interdepartmental M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College, the Medical Scientist Training Program provides experienced graduate students in medical science and scientific medicine with emphasis on research and teaching. With support from the National Institutes of Health, the program integrates the requirements for doctoral training in scientific basis of medicine with the full clinical requirements of the medical curriculum. The program entitles six to seven years of study. Further details are given in the program description.

Combined M.D.-Master's Degree Programs

Students who wish to pursue the M.D. degree in combination with a master's degree program must gain admission to both the College of Medicine and the Graduate College and must make detailed arrangements with the graduate department chair and the associate dean for medical student affairs of the College of Medicine.

Interdisciplinary Programs and Centers

Interdisciplinary programs and centers have been developed that draw strength from the faculty of the college and the facilities available to them. With regard to their external role, too, to the organization of graduate and postgraduate training. Notable among these interdisciplinary programs is the College's Center for Women's Studies, in which a degree is not offered; students determine emphasis through appropriate selection of a study program. Further information is available from the associate dean for interdisciplinary activities.

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 1961. It is the only multi-disciplinary health services research program to own 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.

Endocrinology Research Center

The Diabetes and Endocrinology Research Center coordinates research and training programs related to diabetes and associated endocrinological diseases. It was established in 1979 with support from the Institute of Arthritis, Metabolism, and Digestive Diseases.
Cancer Center
A Cancer Center was established in 1980 to coordinate the efforts of University of Iowa faculty and staff in research, education, and demonstration programs related to all aspects of cancer.

Alzheimer's Disease Research Center
This center studies Alzheimer's disease and related neurological conditions from the viewpoint of neuroanatomy, neurochemistry, neuropathology, and neuroimmunology. The center's purposes are to improve the diagnosis and treatment of these conditions, to disseminate information on new research to the public, and to contribute to a better understanding of the neural basis of cognition.

Educational and Patient Care Facilities
First- and second-year classes are taught in the Bowen Science Building and the Medical Laboratories. The Hardin Library for the Health Sciences is a vital resource centrally located on the medical campus. Students acquire clinical experience in the 8th floor University of Iowa Hospitals and Clinics complex, in the adjacent 655-bed Veterans Affairs Medical Center, and in a score of affiliated hospitals and ambulatory care centers in the area.
Facility members of the Colleges of Medicine and Dentistry make up the 500-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 464 resident physicians and dentists who make up the house staff of the hospitals and clinics, whose facilities are provided for teaching all not only medical specialties, for residents in all such specialties, and for internships in a number of medical specialties.
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 that are 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 services, see "The University of Iowa Health Care System," in the Special Resources at Iowa section of the Catalog.

Research Facilities
The E. A. Reiman Medical Research Building, opened for occupancy in early 1980, was designed to provide flexible research space that rapidly adapts to the changing needs of interdisciplinary biomedical programs. This facility serves interdisciplinary groups of faculty scientists, each of whom is research 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 accommodate this, the facility's laboratories have been designed to accommodate a wide range of research. The spaces, mechanical systems, and available support services offer the greatest flexibility and adaptability for current and future research.

Research facilities for the College of Medicine and the University of Iowa Hospitals and Clinics have been extended by approximately thirty thousand square feet of space, including new space at the University Research Park.
A number of facilities that support the research and teaching endeavors of College of Medicine faculty are administered through the dean's office. University of Iowa research facilities housed in the College of Medicine include the Electron Microscopy Facility and a Computer-Aided 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 signal generation. The medical graphics, photographic, and motion picture sections offer consultation, design, and production services for three-dimensional forms. The spectrum of composition is greatly expanded by the computer-generated graphics system.
The F-3 facility meets federal guidelines for recombinant DNA research. It is designed to accommodate up to 21 microorganisms in the laboratory. The Radiation Facility is located in the Radioisotope Research Laboratory. Radiation sources available include 210 millicuries of radium-226 and 12,000 Curie cernium-137 gamma ray source. These units make it possible to simulate a variety of specimens, animals and invertebrates, with low to very high doses. The Electron Spin Resonance Facility allows investigators to detect directly free radicals as well as to study paramagnetic substances.
The Proteins Structure Facility provides services such as amino acid analysis, protein sequencing, peptide synthesis, and HPLC separations. In addition, instrumentation for the specific 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 FACSY system in the Flow Cytometry Facility rapidly analyzes 24 samples per minute on the basis of fluorescence and light-scattering properties. The High-Field Nuclear Magnetic Resonance Facility provides NMR spectra services through either a staff operator or by hands-on usage. The facility for mass spectrometry provides service for the qualitative and quantitative identification of important biological molecules. The Thermo-Culture Hybridomas Facility provides tissue culture media for tissue culture. It prepares cell cultures 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 University of Iowa Affiliated Facility, a unit of the Division of Developmental Disabilities Department of Pediatrics, provides interdisciplinary training, exemplary services, technical assistance, and information dissemination and participation in research to enhance the quality of life for persons with developmental disabilities. Professionals from more disciplines e.g., audiology, dentistry, education, family practice, pediatrics, nursing, nutrition, occupational therapy, physical therapy, psychology, leisure studies, social work, speech-language pathology, and rehabilitation engineering work together as teams to provide short-term 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. The office provides educational consultation, interacts with educational researchers, and conducts faculty development activities.

Doctor of Medicine
The University of Iowa College of Medicine accepts 175 freshmen students each year into its four-year degree program to the Doctor of Medicine (M.D.) degree.
The curriculum in medicine at the University is based on a strong tradition of excellence. It is continually evolving to continue to meet the changing needs of the new physician and society.
Basic Medical Sciences (First Three Semesters)
The first three semesters present a core of multidisciplinary preclinical study of medicine.

First Semester
64-105 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical pathology and surface anatomy with emphasis on the circulatory, respiratory, and nervous systems of the human body. Undergraduate, and the relationship to the living system is increased.
46:104 Medical Embryology often lectures on human embryology, with emphasis on the clinical aspect of development. Registration is limited to medical students; graduate students are referred to 46:217. The course is offered fall semester.

46:105 General Pathology for Medical Students provides a course of study for the core information concerning molecular and large structure and function needed for the work to be accomplished in physiology and pathology.

1-1.5 102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine and to increase awareness of personal and social values. The course provides students with small-group experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.

63:110 Biostatistics provides framework for the conduct of experimental medicine, and the biological and medical sciences. It is given in the introduction of studies published in medical journals.

Second Semester

72:212 Medical Physiology often students an understanding of responses that an organism gives to external stimuli and provides a basis for understanding the integrative function of organ systems. Much of the potential in these two courses is presented from a clinical point of view. In the first year of medical school, essentially required laboratory exercises, students gain their evaluations of the physiology mechanisms at work in the clinical material. For those students who wish to continue medical studies, see the appropriate medical school course.

41:103 Medical Microbiology includes immunology and provides a core of information on the classification and mode of action of infectious agents, as well as certain aspects of body response to the invasion. Laboratory work plans in important role in this course.

50:224 Medical Neurosciences is an integrated course dealing with basic principles of neurophysiology and neuroanatomy, with emphasis on the human central nervous system. The laboratory primarily involves the anatomical study of organs.

69:201 General Pathology for Medical Students contains correlation with medicine in this semester to increase efficiency of the learning process. Emphasis is placed on pathogenesis and altered functions in cellular and tissue degeneration, infection, and growth disorders. Critical problem-solving and discussion periods have replaced laboratories in this course.

Third Semester

69:202 Systemic Pathology for Medical Students applies the principles given in the previous semester to specific diseases in an organ system approach. Student-centered learning is facilitated by discussion groups and practice case analysis.

63:109 Preventive Medicine presents an overview of core concepts to help prepare students in some of the surgical, economic, and public health aspects of medical practice.

71:105 Pharmacology for Health Science: Medical bridges the clinical and basic sciences and provides students with principles that must be understood in order to describe properly the actions of drugs in patients.

50:105 Biomedical Ethics covers ethical vocabulary, the processes of sound reasoning, and illustrative problems increasingly prevalent in modern medical work.

Several elective courses are available to students during the third semester. These include 2 second-year classes which require areas not specifically covered in the regular curricula and areas subject to recent developments, including the role of the patient. Typical examples are Perspectives in Aging, Humane Medicine, Human Nutrition, and Spanish for Health Professionals.

Introduction to Clinical Medicine (Fourth Semester)

A major interdepartmental course, 50:111 Introduction to Clinical Medicine, fills the fourth semester. It involves participation by a large proportion of the faculty and is vital in providing students with the tools for a lifetime of patient care.

The first series of mornings is devoted to improving the patient in a person and giving guidance in interviewing, counseling, and history taking. Following this is an intensive review of clinical medicine on an organ system basis, presented by teams of clinicians and basic scientists. The final, group of mornings is spent in areas of medicine that do not fall readily into organ systems, and on reevaluation of some key subjects.

Throughout the 16 weeks of the course, students spend afternoons acquiring and practicing the clinician's skills in history taking and physical examination. Skills of care, concern, and compassion needed by all physicians are established in this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level of skill in each. If further work is needed, guidance and assistance are provided.

Clinical Clerkship (Third Year)

The third year includes the required clinical clerkship and presents students with opportunities to work with physicians of almost all disciplines as they care for their patients. Students spend nine weeks in internal medicine, six weeks in surgery, pediatrics, psychiatry, and obstetrics and gynecology; and two weeks each in anesthesia, dermatology, neurology, ophthalmology—head and neck surgery, orthopedic surgery, urology, and family practice. Students spend most of their time in Iowa City except during the last practice clerkship, which exposes students to primary care in a physician's private practice seminar in Iowa.

The clinical clerkship year is the most critical period of time in medical education, for it is when students take on the posture of physicians to learn firsthand the complexity of medical science when viewed at the bedside, and to understand the physician's responsibility for human life.

Period of Selective Study (Fourth Year)

Following the clerkships, the fourth year provides a period of selective study, giving students greater options. The breadth, comprehensive orientation to the different medical disciplines and the level of clinical specialization achieved during the clerkship year quality students to participate in a variety of medical experiences, ranging from advanced courses in specialty areas in community-based clerkships in primary care. All students must complete a required course in clinical pharmacology and demographics.

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 itself actively works to allocate financial aid to every student interested in a medical education to finance their education.

Financial assistance is provided by The College of Medicine's financial aid programs. Although limited grants are available for the most economically disadvantaged students, most aid is in the form of loans. Examples of available loan programs are the Health Professions Student Loan (HPSL), the Staff/Student Loan (SSL), the Supplemental Loan for Students (SLS), the Perkins Loan Program, and the Health Education Assistance Loan program (HEAL).

In addition, the College of Medicine has a number of funds that support collegiate loan programs through permanent endowments and/or contributions from alumni and friends of the College of Medicine. The largest of these funds is the College of Medicine Education Assistance Program, the Carroll Brown Medical Student Loan Fund, and the S. Wendt Foundation Fund. The Dr. George Stetson Medical Student Loan is administered through the Iowa Medical Foundation of the Iowa Medical Society also is available to ABI and AIA members who are residents of the state of Iowa.

The College of Medicine also manages a number of student aid programs that help students meet monthly expenses, such as student loans for the Iowa State University of Science and Technology, the Iowa State University Foundation, and the Iowa State University of Science and Technology Foundation.

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Educational Opportunities Program

The Educational Opportunities Program provides educational and academic assistance to disadvantaged students from groups that are underrepresented in the medical profession: Black Americans, Mexican-Americans, Native Americans, and mainland Puerto Ricans.
Admission to the M.D. Program

The College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. Preliminary applications are processed by AMCAS beginning the first of the year preceding the beginning of the class for which application is being made. Prospective students are urged to apply as early as possible. The closing date is November 15.

Final application will be forwarded to applicants whose AMCAS applications pass a reviewer conducted by the College of Medicine. A $80 fee accompanies the final application from applicants who have not completed work in residence. The University of Iowa. This fee is not refundable except to residents of Iowa who are denied admission.

Admitted applicants also must meet the 'University of Iowa Office of Admissions' as 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 student must have earned at least one semester hour 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 junior college course in organic chemistry, or its equivalent following a complete introductory course in modern general chemical principles.

Biological Sciences: a complete introductory course in the principles of animal biology, or a course in zoology, botany, or general biology.

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, communicative, and interpersonal skills. Therefore, the following abilities and characteristics must be met by all students admitted to the College of Medicine.

- Candidates must be able to learn, 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 percusion.
- Candidates must be able to judge reasonably to patients and establish effective, professional relationships with patients.
- Candidates are expected to be able to communicate effectively with 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 prudence, quickness, and appropriate action in emergency situations.
- Candidates are expected to be able to accept criticism and respond by appropriate modifications 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 coordinator 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 attended at least a 2.5 grade-point average for all college work undertaken. Where courses are available on a graded or pass/fail basis, it is expected that applicants will have taken the required science courses for a grade.

Preference is given to applicants with high scholarly standing who are residents of Iowa. Consideration is also 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 fall of the year preceding that for which they are seeking admission. Students may arrange to apply for this examination through the University's Evaluation and Examination Service.

Personal interviews are not usually conducted but are occasionally requested by the admissions committee. Applicants who feel the interview is necessary may request that one be arranged by contacting the coordinator of admissions. Requests for interviews normally should be made by January 1. The specific purpose of the interview should be clearly stated.

Applications accepted on or prior to February 15 must submit a $50 advance payment by March 1. Applicants accepted after February 15 must submit this payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees.

All students entering the College of Medicine are required to comply with the preceptor and periodic health screening program developed by the Student Health Service in cooperation with The University of Iowa Hospitals and Clinics.

Promotion Policies and Procedures

Promotions Committee

The purpose of the promotions committee is to ensure that each person who graduates from the University of Iowa College of Medicine has relevant skills, knowledge, judgment, ethical standards, and personal integrity to assume the responsibilities of a medical doctor. To perform its duties, the committee depends on the cooperation, advice, and judgment of faculty, students, and graduates.

The promotions committee consists of the dean of the College of Medicine, all full medical students elected to office without vote. There are five faculty members, one of which is appointed by the dean to serve as chair. Two are from two different basic science departments, and three are from the different clinical departments. There is a medical student member from either the junior or senior class.

The dean of the College of Medicine makes faculty appointments to the committee after consulting with the executive committee and appointments the student member after consulting with the medical student council and the chair of the committee.

Regulations and Procedures

In general, promotion from one grading period to the next is contingent upon the satisfactory completion of the courses of each grading period. It is the prerequisite of the promotions committee to permit a student who has not satisfactorily completed courses in a preceding grading period to continue, provided that an appropriate program is designed for that student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in courses is based on examinations or other tests as determined by each department or course and on clinical skills and competency as deemed appropriate by the department or course.

The College of Medicine requires that all students demonstrate proficiency in a variety of cognitive, problem-solving, manual,
communicative, and interpersonal skills and points toward the development of principles of medical ethics. These critical skills and ethical guidelines are described in detail in the Handbook for New Students, which medical students receive upon matriculation.

Scholastic performance in the first three years is reported by using the letters F, I, A, and B in the selective student index, only grades F, I, and A are used. The letter I indicates satisfactory achievement at the passing level.

The letter F indicates "failure," indicating achievement at an exceptionally high level. The letter I indicates work below the passing level. The letter I is used when, for good reason, the student has not completed the work in a course.

The promotion committee meets at least three times each year, following the completion of each academic semester and at other times as requested by the associate dean for medical student affairs.

The committee reviews with the course director the records of all students who have received a grade of F in any of the previous grading period. The committee reviews the record of any student presented by the course director committees or the associate dean for medical student affairs as doing continually poor academic work, or failing to demonstrate proficiency in any of the eleven skills or against detailed above, or not meeting the minimal ethical standards. The committee considers other business or procedure as deemed necessary to perform its duties as set forth in its charge.

The promotion committee recommends specific actions to be taken in the case of any student whose skills are judged to be unproficient or whose behavior is in any way considered consistently unprofessional or unsatisfactory. Such recommendations are forwarded for action to the medical board and executive committee, meeting in joint session to represent the faculty.

Possible recommendations include immediately dismissing the student from the college, requiring the student to withdraw voluntarily from a part of the curriculum, and allowing the student to continue either a regular or decelerated schedule.

Students having ungraded grades of failure are placed on academic probation. A grade of incompleteness, if remediated in the time and manner specified, will be placed on the promotions committee recommendations, becomes a grade of failure. Students who are on probationary status may be considered for dismissal if further academic difficulties arise.

The promotions committee presents all recommendations for awarding the degree, Doctor of Medicine, to a joint meeting of the medical council and executive committee, which act on the recommendations for the faculty.

Medical students are not permitted to drop courses after the deadline established by the dean of the college. Students who are not instructed in the college until after the deadline receive a grade of W unless the entire registration is canceled. Students who drop a course without obtaining the dean's permission receive a grade of F unless the entire registration is canceled.

Relationship to Course Directors Committees

The course director committees provide guidance and counseling for students and are a resource for and provide advice to the promotions committee.

Appeals

Students who wish to appeal prospective, decisions must submit an appeal in writing to the dean of the College of Medicine within two days after the date of receipt of the decision. All appeals are heard, and decisions rendered, 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.

Leave of Absence

The College of Medicine believes that certain students may benefit from being granted a leave of absence from the college for specified periods of time. A leave of absence should be requested from the associate dean for medical student affairs. Leaves are granted at the discretion of the dean.

All leaves must be arranged in advance of the student's absence. Students who request a leave begin during a clinical clerkship or clinical elective must obtain permission from the course director. Students requesting a leave of absence who are not in good academic standing (no probation or failing status in a course) must be reviewed by the Committee on Student Promotions.

At the discretion of the department, any unexcused absence from an examination, a major portion of a basic science course, or a clinical clerkship may result in a grade of F.

Withdrawal

Students may withdraw from the College of Medicine upon written request submitted in the office of the associate dean for medical student affairs. Reinstatement

Applicants for reinstatement by students who have withdrawn voluntarily or who have been required to withdraw from the college must be received at the office of the dean at least four months prior to the requested date of reinstatement. The faculty is authorized to refuse continued or further registration to any student if it believes that he or she has not lived up to the expected general ethical requirements for entering the medical profession, as described in detail in the Handbook for New Students. Ordinarily, such action is taken by the medical council and the executive committee meeting in joint session and acting as representatives of the faculty.

Informal Procedures

When a dispute arises between a student and a faculty member or department, there is often consultation between the individuals involved to resolve the problem. The medical school has a formal procedure, as described in "Procedures and Policies," and an informal procedure, outlined here.

In the College of Medicine, students with problems or complaints should first attempt to resolve the issue with the faculty member involved. Failing a satisfactory outcome, students may then turn to the course or clerkship director and the department chair or head. If satisfaction still is not obtained, they may discuss the complaint informally with the associate dean for medical student affairs of the College of Medicine. The informal discussion does not necessarily lead to involvement of the office of the dean in an official capacity. Should these steps not resolve the situation, the student may file a formal complaint through the office of the dean of the College of Medicine.

This informal procedure allows the greatest flexibility for all concerned in resolving conflict and does not involve sanctions in the student's permanent record, which are part of the formal procedures. The informal procedure is intended for any situation students may encounter, including grading disputes and alleged academic dishonesty, alleged dishonesty during clinical rotation (e.g., falsifying patient data), and perceived incidents of discrimination or harassment. Complaints or alleged harassment are handled confidentially not in accordance with University policy and procedures.

When a student is unhappy with a situation or feels that a complaint with a faculty member or department, others should try to avoid making complaints based on rumors and bits of information. In the interest of the student's confidentiality, full details of incidents are almost never released to the medical student body.

Students are encouraged to make full use of counseling services available, the dean's office or through Student Health Service. These cover all the full range of academic, personal, emotional, or other difficulties. Students are handled informally without going into the student's record, unless it involves an official action (e.g., taking a year off or recommending an early or academic death.

Division of Associated Medical Sciences

The division offers a B.S. degree in medicine, the M.P.H. and M.A. degrees in the Physical Therapy Program, the Ph.D. degree in exercise physiology. The division offers the graduate degree in Exercise Science, and the M.S. physician assistant tracks in physiologic medicine and environmental health or exercise science are offered through the University. The division is subject to the policies of the Graduate College and the regulations of the state legislature. Students must be students of legal age to enroll. A student's program in exercise science is approved by the Graduate College and the Board of Education.

Division of Medical Sciences

The division offers a B.S. degree in medicine, the M.P.H. and M.A. degrees in the Physical Therapy Program, the Ph.D. degree in exercise physiology. The division offers the graduate degree in Exercise Science, and the M.S. physician assistant tracks in physiologic medicine and environmental health or exercise science are offered through the University. The division is subject to the policies of the Graduate College and the regulations of the state legislature. Students must be students of legal age to enroll. A student's program in exercise science is approved by the Graduate College and the Board of Education.
General Policies

Advising
When students declare their intended major to be one of the programs in the Division of Associated Medical Sciences, they are assigned to that program for academic advising.

Admission
Students are admitted to the College of Medicine at the time of formal admission to one of its programs. Admission policies and procedures vary from program to program. The Physician Assistant Program has an early admission process.

Students should consult the individual program descriptions and/or program offices for details of the admission processes. Students may be admitted as degree or nondegree candidates (special students). Nondegree candidates are subject to College of Medicine rules for academic probation and dismissal.

To be considered for admission, applicants must have earned a cumulative grade-point average on all college work attempted at least 2.00 grade-point average in all college work attempted at appropriate to each program: medical technology, 2.50; nuclear medicine technology, 2.50; and physician assistant, 2.70. Admission committees give special attention to grades in the sciences, particularly those prerequisite science courses required by the individual programs. The cumulative or science grade-point average for the last 60 semester hours may be used to satisfy the minimum grade-point average requirement, at the discretion of the program admission committees.

Student Health
Students admitted to division programs must show proof that they have had a recent physical examination including recent laboratory procedures and immunizations for their own and their parents' protection before they enter the program. These records are maintained through Student Health Service, which should be consulted for further information.

Financial Aid
Students in the Division of Associated Medical Sciences counseling programs are eligible to apply for undergraduate financial aid. Financial aid officers, loan and part-time job placements are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work in related areas is sometimes available.

Graduation Requirements for Baccalaureate Degrees

General Requirements
Students must earn a minimum of 124 semester hours of credit. The number required after admission to a specific program varies from program to program. Students should consult the program description and/or program director for more specific information.

The general requirements for graduation include quality as well as quantity of work completed. Candidates must earn a 2.00 minimum grade-point average in all college work attempted, all work undertaken at The University of Iowa, and all graded work attempted after admission to the College of Medicine. Students enrolled in a program that uses the pass/fail/honor 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 of the last 60 semester hours in residence, or an overall total of 90 semester hours in residence.

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

General Education Requirements vary from program to program. Students must check the requirements of the specific program or degree objective. Specific requirements for the major are listed in each program description.

Double Majors
Students may earn more than one major in the College of Medicine by following 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 and by 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 for foreign language requirements.

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 College of Medicine and Liberal Arts. Although students begin their academic program in the College of Liberal Arts, they must be eligible for admission to College of Medicine baccalaureate programs in medical technology, nuclear medicine technology, or physician assistant.

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 area of study selected in each college. Students who enter the combined degree program are assigned two faculty advisors: one in the major department of the 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 134 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 review the directions for the baccalaureate-progression 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 degree is awarded in which 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 satisfies the requirements of a core course in a subsequently completed course. Duplication and regeneration are assessed by the registrar at the time of graduation analysis. Hours earned by duplication or regeneration do not count toward the number of hours needed for graduation.

Graduation Honors
Approximately ten percent of the graduate's graduating students may be recognized for their academic 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.
Register of Names

Students are not allowed to register after the first 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

Course withdrawals are made at the request of the instructor and the course instructor at any time during the first one-fifth of the course. There may be dropped at any time during the first two-thirds of the course. Approval is requested from the head of the division for all other changes in registration and is granted only in extraordinary circumstances. Students are assigned a mark of W (withdrawn) for any course dropped after the first one-fifth of the course.

Students who have registered for courses offered for variable or graded credit may change the number of semester hours with the signature of the instructor, the adviser, and the head of the division at any time prior to the end of the first two-thirds of the course. Changes in registration (such as to audit for O credit) may be made only during the first one-fifth of the course.

It is the student's responsibility to realize that change of registration form is approved by the necessary individuals and delivered to the Registrar. Changes in registration become effective only after an acceptable change form is submitted to the Registrar Center.

Withdrawal from Registration

Students may withdraw registration without academic penalty at any time prior to the end of the first four fifths of the course, but no credit is given for the course. Late withdrawal results in automatic assignment of F. Students who withdraw are not reenrolled after the deadline for that session.

Grading Procedures

Markings on forms are program driven to program. Students should consult individual program policy statements for information.

Auditing Courses

Students may register as auditors with approval of the appropriate program, division, and course instructor. In addition to being accountable for all obligations, students would receive no credit in the course to be audited. The mark of R (registration) is assigned if the student's progress and performance are satisfactory; if they are unsatisfactory, the mark of W (withdrawal) is assigned. Courses completed with a mark of R do not meet any college or division requirement and carry no credit toward graduation. Auditing may not be used as a second-grade-only option.

Second-Grade-Only Option

Repeating courses for the second grade-only option is allowed in extraordinary circumstances. To repeat a course for the second grade-only option, students must obtain the signatures of the course instructor, the program director, and the dean on a special form obtained from the program office. The proposal signed form must be presented to the registrar's office before the end of the first one-fifth of the course. Both grades will remain on the permanent record, but only the second one is used to calculate grade point average and basis earned.

Incompletes

A grade of I (incomplete) may be reported if the reason for inability to finish the course satisfactorily is acceptable to the program director and the course instructor. There are two outstanding grades that must be reported and cannot be removed by the deadline for submission of final grades for the next session result in the assignment of a grade of I. 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 record the following semester. Under no circumstances will any formal student reports issued.

Academic Progress, Program Probation, and Dismissal

Students are expected to maintain acceptable academic and professional standards in order to remain in good standing. Students who fail to meet academic standards may be referred to a faculty committee for a disciplinary action.

Academic Progress

Students are expected to maintain satisfactory academic progress and to demonstrate reasonable progress toward the degree or equivalent. Students who fail to make satisfactory academic progress or fail to meet established standards of behavior as determined by the program will be placed on probation. Probation serves as a warning that the student will have two semesters to raise academic performance or professional behavior improves. Students on probation are required to attend the program director for an evaluation of the problem. Students may be dismissed from the program at any time if they do not meet the minimum standards for admission.

Academic Progress

Combined satisfactory scholarship or unsatisfactory behavior may result in dismissal from a program. Students dismissed from a program must reapply for admission through the regular established admission procedures. Follow-up reports by the executive committee of the division, at least four months prior to the requested date of reactivation.

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 the file. Students are expected to attend classes regularly, to meet special class requirements 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 and program director.

Appeals Procedure

Students who want to appeal a decision should submit a written appeal to the dean within two weeks from the date of receipt of the decision in writing.

Undoubtedly...

Persons who do not wish to be admitted to the College of Medicine but want to register for certain courses will be admitted only if the course is an essential component of a program of studies and upon the student's compliance with all the rules required for admission to such a course, or by action of the faculty upon recommendations of the professor in charge of the course.

Nondepartmental Courses

50:000 Medical Student Research Fellowship
50:040, 50:050, 50:080, 50:090, 50:100
50:1 Medicine Elective Fourth Year
recommended for others. Students should plan their study programs carefully so that courses in specifically required courses do not occur. It is imperative that students consult with the appropriate program advisor to assure the proper sequencing of courses.

The following is a typical curriculum for undergraduate students, with options being exercised after consultation with program advisors. Programs are abbreviated as follows:

MT—Medical Technology (MT-CG—cytogenetics track, MT-F—perturbation track, MT-BT—biotechnology track); NMT—Nuclear Medicine Technology; PA—Physician Assistant; PT—Physical Therapy.

FRESHMAN YEAR

First Semester

1.03 Principles of Chemistry I 3.0
101. Liberal I 4.0
212. Principles of Mathematics for the Biological Sciences 4.0
Foreign civilization and culture 3.0
Psychological education 2.0
Total 16.0

Second Semester

2.02 Principles of Anatomy (MT, all tracks) 5.0
1.04 Principles of Chemistry II 3.0
1.05 Principles of Chemistry Lab I 2.0
1.06 Science II 4.0
Historical perspectives 3.0
Physical education skills 1.0
Total 16.0

SOPHOMORE YEAR

First Semester

2.01 Principles of Physical Biology (NMT, all tracks) 5.0
4.121 Organic Chemistry I (MT, all tracks, PA) 5.0
29.1 College Physics (NMT) 4.0
61.157 General Microbiology (MT, all tracks) 5.0
Humanities 3.0
Physical education skills 1.0
Social sciences 3.0
Total 15.0

Second Semester

2.021 Organic Chemistry II (PA) 3.0
29.2 College Physics (NMT) 4.0
31.3 General Psychology (PT) 4.0
WPT—Writing for the Sciences (MT-BT) 3.0
99.119 Biochemistry (MT, all tracks) 3.0
101. Level toss course (PA) 2.0
Electives 3.0
Humanities 3.0
Social sciences 3.0
Total 14.0

Students who have satisfactorily completed the above prerequisites have satisfied the minimum academic requirements for entry admission to the Medical Technology (all tracks), Nuclear Medicine Technology, and Physician Assistant programs. Others complete the additional requirements below.

JUNIOR YEAR

First Semester

2.112 Cell, Tissue, and Organ Biology (MT-CG) 5.0
29.1 College Physics (PT) 4.0
61.138 Principles of Epidemiology (MT-BT) 3.0
Foreign language 4.0
31.3 Introduction to Clinical Psychology (PT, MT-P) 3.0
72.130 Human Physiology (NMT, PT) 4.0
Computer science (MT, all tracks) 3.0
Total 15.0

Second Semester

2.128 Fundamental Genetics (PT), MT-CG 3.0
215 Cell Physiology 4.0
29.2 College Physics (PT) 4.0
61.01 Principles of Human Anatomy (NMT) 3.0
60.11V Instrumentation in Clinical Laboratory Science (MT, all tracks) 3.0
69.120 Independent Study in Medical Laboratory Science (MT, all tracks) 1.0
72.120 Intermediate Physiology (MT, all tracks) 4.0
Foreign language 4.0
225.110 Biochemistry (NMT, PT) 3.0
225.120 Introduction to Statistical Methods (NMT, PT) 3.0
Total 14.0

SENIOR YEAR

General education, elective, or advanced courses in the Departments of Biochemistry, Microbiology, Chemistry, Biology, or other subjects specified for specific degree requirements.

MEDICAL TECHNOLOGY

Director: Marian Schweizer
Assistant Director: D. Stanley Hyeid
Medical director: James A. Gairton
Associate professors: James A. Gairton
Lecturers: Richard Wyssen, Marian Schweizer
Annexation: James O’Connor, Carol S. Williams
Assistant in-teaching: Kathleen Kelly, Larry Wall
Adjunct instructors: John Attkin, Diane Jorjua
Adjunct associates: Thomas Fesce
Adjunct assistant in-teaching: Jonathan S. Miller, Debbie Cowles, Christine White, Donna D. Czech, Joe Germ, M. Sivin, Franko Tochick, Mike Laci, Maurice Loomis, Sondra Mather, Robert Whitney, Manuel Mace, Jule Pacheco, Beverly Penfold, Debbie Neiman, Dan Putnam, Katie Ayers, Carla Schmieder, Monica Kieckhefer, Bernice Swear, Janie Voight, Sara Wierzbicka
Degree: B.S. in Medical Technology

Medical TECHNOLOGY: Clinical laboratory scientists perform the laboratory tests on which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospitals, private, and government laboratories, clinical, physicians’ offices, and industrial, pharmaceutical, biological, and environmental research laboratories. Medical technologists/clinical laboratory scientists are highly skilled health team members who use a battery of sophisticated procedures and

instrumentation in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

The Medical Technology Program is sponsored cooperatively by the College of Medicine, the College of Liberal Arts, The University of Iowa Hospitals and Clinics, and the Veterans Affairs Medical Center. Satisfaction of requirements for the program qualifies students to take all medical technologist/clinical laboratory scientist certification examinations. The program is approved by the Council on Medical Education of the American Medical Association and by the National Accrediting Agency for Clinical Laboratory Sciences. Admitting that students have completed the required courses indicated above in the freshman, sophomore, and junior years, the remaining curriculum may be as follows.

SENIOR COURSES

The clinical programs consist of a minimum of 12 months of clinical and practical instruction. The first summer session and semester of all tracks are devoted to lectures, laboratory experience, demonstrations, and seminars covering theory and techniques in clinical laboratory science. During the last academic year, students have the opportunity to rotate through the clinical laboratory sections of The University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Center, and other hospitals in Cedar Rapids, Des Moines, and Waterloo. They attend additional seminars and may begin a supervised track, if they wish.

The program is made up of the following courses.

69.119 Instrumentation in Clinical Laboratory Science 3.0
61.120 General Chemistry for Medical Technology 3.0
69.120 Clinical Chemistry for Medical Technology 5.0
69.121 Microbiology for Medical Technology 3.0
69.124 Clinical Hematology for Medical Technology 3.0
69.125 Microbiology for Medical Technology 3.0
69.126 Clinical Chemistry for Medical Technology 5.0
69.127 Clinical Immunohematology for Medical Technology 3.0
69.128 Microbiology for Medical Technology 5.0
69.129 Clinical Hematology for Medical Technology 3.0
69.131 Clinical Laboratory Science Seminar 2.0
69.132 Radiology for Medical Technology 1.0

Alternate tracks include the following courses.

Biomedical Technology

69.134 Clinical Research for Medical Technology 3.0
69.175 Biomedical Research Techniques 2.0

Cytogenetics

69.150 Medical Cytogenetics 3.0
Admission

The medical technology/clinical laboratory science professional program is limited to 32 students, who begin the program in late May. Applications close October 15. Sixteen students continue during the fall and spring semesters and complete the program in May. The other 16 have the opportunity to complete specialized prerequisite course work during the fall semester and then return to the program for the spring and fall semesters of the following year, graduating in December. Additional students, who wish to complete alternate tracks (cytogenetics or histotechnology) must observe the same admissions process and complete the first two semesters of the program year. The amount of additional time required varies by track.

To apply for admission to the professional program, students must be able to complete all of the following prerequisite and University graduation requirements by the end of the professional (clinical) year:

- Fourteen semester hours of chemistry, including qualitative analysis, organic chemistry, and biochemistry
- Three semester hours of mathematics
- Fourteen semester hours of biology, including general zoology, microbiology, and human physiology

Admission is on a competitive basis. Cumulative grade-point average of 2.50 overall and 2.50 in science genera 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 an advisor in the Medical Technology Program as early as possible to plan preclinical studies that meet all requirements.

Expenses

Medical technology students in the professional curriculum are responsible for textbooks, University tuition, and room and board fees. Laboratory costs and equipment such as microscopes are provided by the program.

Nuclear Medicine Technology

Director: Anthony W. Knight
Medical director: Peter T. Ekstedt
Technical director: Mark A. Atkinson
Professor: Jeanne R. Collins
Clinical supervisor: George H. Cheng
Clinical supervisor: Richard W. Rucka, Karen Reink, James E. Sedlar
Assistant professor: Mark A. Atkinson
Associate professor: Daniel Katz, Gerald Weidlich
Clinical supervisor: James A. Pavone,
College of Pharmacy
Visiting instructors: Terrence
Adjunct instructor: Anthony W. Knight
Degree: A.S. in Nuclear Medicine Technology

Nuclear medicine technology is a medical specialty that uses radioactive tracers for diagnostic, therapeutic, and research purposes. It is a rigorous, demanding field that has grown rapidly over the past two decades and is still expanding and growing in complexity. This continued expansion of the specialty has fostered an increasing demand for highly skilled and motivated nuclear medicine technologists.

Nuclear medicine technologists generally work in hospitals and clinics. At the heart of nuclear medicine technology is the use of specialized detection and computer to trace the movement and localization of radioactive tracers in the human body.

Other basic job responsibilities may include radiation safety, quality control, radiopharmaceutical preparation and administration, collection and preparation of biological specimens to measure levels of hormones, drugs, or other body components. In all these functions, the nuclear medicine technologist works hand-in-hand with nuclear medicine physicians, radiologists, radiopharmacists, and radiologists as an integral part of a well-coordinated team.

The Nuclear Medicine Technology Program at The University of Iowa is fully accredited by the Committee on Allied Health Education and Accreditation and the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the Joint Review Committee on Education in Nuclear Medicine requires three years of preclinical work in the College of Liberal Arts and the College of Medicine, and a minimum of 12 months of professional clinical experience, available at The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center.

Upon satisfactory completion of the four-year program, students receive the Bachelor of Science from the College of Medicine and a certificate of training. Graduates are then eligible for national certification as nuclear medicine technologists.

The required courses in the freshman and sophomore years emphasize the physical and biological sciences, which provide a basic background for further development in the junior year.

Applicants are strongly urged to pursue a course of study that includes毅 a baccalaureate degree, minor or major in biology, chemistry, microbiology, or mathematics. In this way, students who are not admitted to the NMT program can complete a degree in their chosen area.

Admission

Requirements for admission to the Nuclear Medicine Technology Program include the following:

- a minimum of 94 semester hours in all courses with a 3.50 minimum cumulative grade-point average;
- fulfillment of the College of Liberal Arts General Education Requirements in rhetoric, foreign language, physical education, humanities, historical perspectives, foreign
Physiology

Department: Cardiovascular
Professor: Gary Soward, Cindy Sadower
Assistant professor: Carol Eubanks, Carol Weikers
Associate professor: Thomas Cook
Adjunct professor: William Onish
Adjunct associate: John Sowers
Adjunct assistant: Bruce Baker
Adjunct student: Steven Shaw
Adjunct instructor: Joseph Lauer
Adjunct professor: Bruce Martin
Adjunct professor: Michael Smith
PhD. M.T. M.A. in Physiological

Physical Therapy

The Master of Physical Therapy Program is offered by the Department of Physical Therapy. The program is designed to prepare students for entry-level positions in physical therapy. The program is accredited by the Commission on Accreditation in Physical Therapy Education. The program requires the completion of 126 semester hours. Graduates of the program are eligible to take the National Physical Therapy Exam (NPTE). Admission to the program is based on academic achievement, professional experience, and personal attributes. The application deadline is February 15. For more information, please contact the Department of Physical Therapy at 505-444-5555.

Professional Programs

1. Master of Physical Therapy

   The Master of Physical Therapy Program is accredited by the Commission on Accreditation in Physical Therapy Education. The program requires the completion of 126 semester hours. Graduates of the program are eligible to take the National Physical Therapy Exam (NPTE). For more information, please contact the Department of Physical Therapy at 505-444-5555.

Graduate Programs

1. Master of Arts

   The Master of Arts program is designed to provide advanced training in a specific area of physical therapy. The program requires the completion of 36 semester hours. Graduates of the program are eligible to take the National Physical Therapy Exam (NPTE). For more information, please contact the Department of Physical Therapy at 505-444-5555.
program focuses on theoretical and clinical applications. The master's degree requires a minimum of 36 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 equipment for measurement and analysis of cardiovascular responses (heart rate, blood pressure, energy cost, and ventilation), musculoskeletal function (joint strength and endurance, gait, posture, and disability evaluation), and neuromuscular activity (electromyography, spinal reflexes, CNS control mechanisms). Use of extramural research laboratories may be arranged. Collaborative studies are encouraged with other departments such as anatomy, internal medicine, pediatrics, orthopedic surgery, physiology, and pharmacology, anthropology, engineering, and pharmacy, and with persons 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 postgraduate basic professional level of physical therapy teaching and show promise of reaching 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 kinesiology, musculoskeletal, and neuromuscular physical therapy.

The following courses are required:

**60:133 Introduction to Human Anatomy**

**79:00 Introduction to Instructional Design and Technology**

**81:102 Orthopedic Surgery**

**81:207 Osmotical Biomechanics**

**81:275 Assessment of Sensor-Motor Systems**

**27:114 basic Anatomy and Physiology**

**27:153 Advanced Anatomy and Physiology**

Admission

To be considered for admission, applicants must be graduates of an approved professional program of physical therapy and must have earned at least a 3.75 grade-point average on a 4.00 scale on all undergraduate work. Two years of clinical experience 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. Applicants also must meet the requirements established by the Graduate College.

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. 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 ensure that the minimum Graduate College standards are met. The application is then sent to the department for review. Deadlines for completed written applications are October 15 (notification by December 15), March 15 (notification by May 15), and May 15 (notification by July 15).

**Ph.D. in Physical Education (Therapeutics)**

Doctoral training related to physical therapy is received in a program in exercise science (Division of Physical Education), with special emphasis on therapeutics. The program is described in detail under "Exercise Science and Physical Education" in the College of Liberal Arts section of the Catalog.

Students successfully completing the Ph.D. program in physical education with the specialty in therapeutics will:

- be able to teach at the basic professional and master's degree level of physical therapy education and show promise of reaching at the doctoral level;
- be able to perform original scholarly and research work 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 kinesiology, musculoskeletal, and neuromuscular physical therapy.

Admission

Students are admitted to the PhD program leading to the Ph.D. on the basis of their grade-point average on work completed for the master's degree and scores on the GRE General Test. To be considered for admission, students must have earned a minimum 3.0 grade-point average on all graduate work undertaken. In addition, GRE scores must be on the test on file at the Graduate School. 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 transcripts, is then forwarded 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).
101-285: Pediatric Physical Therapy

The physical therapist may work with children with special developmental disabilities, emphasizing on treatment of neurological and orthopedic injuries. Physical therapy is directed by a rehabilitation team.

101-286: Applied Clinical Medicine 3.0

Medical students from the environments of clinical, social, legal, and ethical perspectives. Lecture, journal, case presentations, laboratory, computer laboratory.

101-287: Orthopedics and Manual Physical Therapy 4.0

Pathology, assessment, management of orthopedic disorders. Lecture, laboratory, simulations.

101-288: Cardiopulmonary Therapies 4.0

Cardiorespiratory system, physiology, respiratory mechanics, cardiovascular system, pharmacology, assessment, treatment plans, pulmonary function, medical management, management of patients with acute and chronic cardiopulmonary disorders. Laboratory, seminars, simulations.

101-310: Echocardiography and Pharmacology 3.0

Seminars, clinical presentations, observation of echo, echocardiogram, medical rounds, upper gastrointestinal series, magnetic resonance imaging, anesthesia, critical care, pharmacology.

101-311: Biomechanical Instrumentation 3.0

Basic principles of instrumentation, measurement, data applications to physical therapy research, practice. Offered fall semester.

101-213: Biomechanical Principles of Therapeutics 4.0

Mechanics, biomechanical principles applied to motor function, electromyography, biomechanics, neurophysiology, laboratory. Offered fall semester of even years.

101-214: Advanced Seminar in Physical Therapy 3.0

Current issues of research for biological, mechanical, psychosocial, cognitive aspects of patients in cardiology, respiratory, musculoskeletal, neurologic, pulmonary, and pain physical therapy.

101-230: Seminar in Physical Therapy 3.0

Pediatric physical therapy colleagues in development of clinical practices and research that can be used in the treatment of neurodevelopmental disorders, birth defects, and chronic conditions.

101-240: Research Practice I 3.0

Clinical aspects of physical therapy, critical review of therapeutic practices, research project preparation. Spring term. Offered spring semester of even years.

101-250: Research Practicum II 3.0

Clinical aspects of physical therapy, research project preparation, preparation of a major research project, investigations and study on a client. Offered fall semester of odd years.

101-260: Health Promotion and Community Physical Therapy 3.0

Vocational, philosophical principles applied to health care. Community health, prevention and intervention. Offered fall semester of even years.

101-270: Health Education and Community Health 3.0

Health education, community health, infection control, mental health, assessment, community health, community health, students, community health.

101-275: Health Promotion and Community Health 3.0

Health education, community health, infection control, mental health, assessment, community health, community health, students, community health.

101-280: Teaching Practice 3.0

Teaching strategies, assessment, and supervision in clinical setting, student evaluation. Offered fall semester of even years.

101-285: Pediatric Physical Therapy 3.0

Pediatric physical therapy colleagues in development of clinical practices and research that can be used in the treatment of neurodevelopmental disorders, birth defects, and chronic conditions.

101-290: Research Practicum II 3.0

Clinical aspects of physical therapy, research project preparation, preparation of a major research project, investigations and study on a client. Offered fall semester of odd years.

101-320: Pediatric Physical Therapy 3.0

Pediatric physical therapy colleagues in development of clinical practices and research that can be used in the treatment of neurodevelopmental disorders, birth defects, and chronic conditions.

101-330: Research Practicum III 3.0

Clinical aspects of physical therapy, research project preparation, preparation of a major research project, investigations and study on a client. Offered fall semester of odd years.

101-340: Research Practicum IV 3.0

Clinical aspects of physical therapy, research project preparation, preparation of a major research project, investigations and study on a client. Offered fall semester of odd years.
Professional Curriculum

FIRST YEAR

Phase I
50:105 Law and Medicine for Physician Assistant Students
60:111 Great Human Anatomy for Physician Assistant Students 1 s.h.
61:112 Health Sciences Microbiology 4 s.h.
60:130 Clinical Pathology for Physician Assistant Students 1 s.h.
69:133 Introduction to Human Pathology 4 s.h.
71:125 Pharmacology for Health Sciences. Physician Assistant Students 6 s.h.
72:104 Human Physiology for Physician Assistant Students 4 s.h.
99:164 Seminar for Physician Assistant Students 3 s.h.
117:104 Seminar for Physician Assistant Students 1 s.h.
117:105 Introduction to the Medical and Physical Examination for Physician Assistant Students 1 s.h.
117:106 Introduction to Research for Physician Assistant Students 1 s.h.
117:107 Interpretation of Medical Literature 1 s.h.
117:105 Preventive Medicine for Physician Assistant Students 1 s.h.

Phase II
50:121 Introduction to Clinical Medicine for Physician Assistant Students 20 s.h.

SECOND YEAR

Phase III
The following are required clinical rotations:
60:100 Obstetrics and Gynecology for Physician Assistant Students 6 s.h.
70:555 Pediatrics for Physician Assistant Students 6 s.h.
70:100 Psychiatry for Physician Assistant Students 4 s.h.
75:555 General Surgery for Physician Assistant Students 6 s.h.
78:555 Internal Medicine for Physician Assistant Students 6 s.h.
115:555 Family Practice I for Physician Assistant Students 6 s.h.
117:261 Independent Study 1 s.h.

Elective clinical rotations are selected from the following:
62:5 Dermatology Elective for Physician Assistant Students 2 s.h.
64:101 Neurology Elective for Physician Assistant Students 2 s.h.
61:115 Obstetrics and Gynecology Elective for Physician Assistant Students 2 s.h.
67:106 Ophthalmology Elective for Physician Assistant Students 2 s.h.
70:100 Pediatrics Elective for Physician Assistant Students 2 s.h.
70:104 Pediatrics Elective (Bone Marrow Transplant) for Physician Assistant Students 2 s.h.
70:106 Pediatric Elective (Nursing) for Physician Assistant Students 2 s.h.
70:101 Psychiatry Elective for Physician Assistant Students 2 s.h.
74:5 Radiology Elective for Physician Assistant Students 2 s.h.
75:100 Emergency Room Elective for Physician Assistant Students 4 s.h.
75:110 Surgery Elective for Physician Assistant Students 4 s.h.
75:111 Surgery Elective (Thoracic/Organs Transplant) for Physician Assistant Students 2 s.h.
75:113 Surgery Elective (Burn Unit) for Physician Assistant Students 2 s.h.
75:102 Orthopedics Elective for Physician Assistant Students 2 s.h.
78:110 Internal Medicine Elective for Physician Assistant Students 4 s.h.
78:110 Internal Medicine Elective (Cardiology) for Physician Assistant Students 2 s.h.
78:110 Internal Medicine Elective (Endocrinology) for Physician Assistant Students 2 s.h.
78:110 Internal Medicine Elective (Geriatrics) for Physician Assistant Students 2 s.h.
78:533 Internal Medicine Elective (Hospital) for Physician Assistant Students 2 s.h.
78:531 Internal Medicine Elective (Infectious Disease) for Physician Assistant Students 2 s.h.
78:605 Internal Medicine Elective (Fetal Ultrasound) for Physician Assistant Students 2 s.h.
79:120 Ophthalmology Elective for Physician Assistant Students 2 s.h.
115:500 Family Practice Elective for Physician Assistant Students 2 s.h.
115:556 Family Practice II for Physician Assistant Students 2 s.h.

Admission
To be eligible for admission to the physician assistant professional program, applicants must have completed at least 60 semester hours of college-level study including:
College of Liberal Arts General Education Requirements in mathematics, physical education
skills, historical perspectives, humanities, quantitative or formal reasoning, foreign civilization and culture, social sciences, and foreign language;

a comprehensive core course in inorganic and organic chemistry;

a complete introductory course in zoology or animal biology.

It also is strongly recommended, although not required, that applicants' backgrounds include statistical geometry, beginning calculus, and physics.

Applicants must have completed at least a 2.70 grade-point average on the last 60 semester hours of college work undertaken. The admission committee gives special attention to applicants' performance in science courses. In the past, successful applicants have had a cumulative and science grade-point average of 3.20; a total of 125 semester hours of college credit, of which 55 semester hours were in the sciences; and noncumulative one year of full-time or part-time health-related patient care experience.

Satisfaction of the basic admission requirements does not ensure acceptance into the Physician Assistant Program. The admission 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.

Students are advised to pursue a course of study that is applicable to a baccalaureate degree, consistent with the area of biology, chemistry, or biochemistry. In this way, students who are not admitted to the Physician Assistant Program can pursue the baccalaureate degree.

Each new class begins the last week in May. Applications are accepted beginning one year prior to the entry year. Each applicant must complete the Physician Assistant Program Application and submit at least three letters of recommendation.

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 4000. Microscopes are not required.

Combined Graduate Program

M.S. in Preventive Medicine and Environmental Health or Exercise Science

Clinicians are now entering an era in medicine in which knowledge and skills in preventive medicine, epidemiology, research, data management, and health care administration are of great value. In recent years the scope of the
Course Information and Course Descriptions

Courses

117:115 Introduction to Research Design and Methodology

This course provides an overview of research methods and academic writing, focusing on the development of a research proposal, the formulation of the research question, the collection of data, the statistical analysis of data, and the preparation of a final written report. It is required of all undergraduates in the biological sciences.

117:116 Introduction to Medical Literature

This course provides an introduction to the medical literature, focusing on the development of critical thinking skills, the ability to identify and evaluate sources of information, and the ability to synthesize and interpret information from multiple sources. It is required of all undergraduates in the biological sciences.

117:117 Introduction to Pharmacology

This course provides an introduction to the pharmacology of drugs, focusing on the mechanisms of action of drugs, the effects of drugs on the body, and the use of drugs in the treatment of disease. It is required of all undergraduates in the biological sciences.

117:118 Introduction to Biostatistics

This course provides an introduction to the principles of biostatistics, focusing on the use of statistical methods to analyze biological data, the interpretation of statistical results, and the communication of statistical results to non-statisticians. It is required of all undergraduates in the biological sciences.

117:119 Introduction to Environmental Science

This course provides an introduction to the environmental sciences, focusing on the relationship between humans and the environment, the impact of human activities on the environment, and the role of science in addressing environmental problems. It is required of all undergraduates in the biological sciences.

117:120 Introduction to Molecular Biology

This course provides an introduction to the molecular biology of cells, focusing on the synthesis of genetic material, the regulation of gene expression, and the role of genes in development. It is required of all undergraduates in the biological sciences.

117:121 Introduction to Microbiology

This course provides an introduction to the microbiology of microorganisms, focusing on the structure and function of microorganisms, the interactions between microorganisms and their environment, and the role of microorganisms in biotechnology. It is required of all undergraduates in the biological sciences.

117:122 Introduction to Immunology

This course provides an introduction to the immunology of the immune system, focusing on the structure and function of immune cells, the regulation of immune responses, and the role of immune responses in disease. It is required of all undergraduates in the biological sciences.

117:123 Introduction to Genetics

This course provides an introduction to the genetics of organisms, focusing on the structure and function of genes, the regulation of gene expression, and the role of genes in evolution. It is required of all undergraduates in the biological sciences.

117:124 Introduction to Developmental Biology

This course provides an introduction to the developmental biology of organisms, focusing on the regulation of cell differentiation, the control of cell proliferation, and the role of signaling molecules in development. It is required of all undergraduates in the biological sciences.

117:125 Introduction to Neurobiology

This course provides an introduction to the neurobiology of the nervous system, focusing on the structure and function of neurons, the regulation of neural activity, and the role of neural circuits in behavior. It is required of all undergraduates in the biological sciences.

117:126 Introduction to Pharmacology

This course provides an introduction to the pharmacology of drugs, focusing on the mechanisms of action of drugs, the effects of drugs on the body, and the use of drugs in the treatment of disease. It is required of all undergraduates in the biological sciences.

117:127 Introduction to Biostatistics

This course provides an introduction to the principles of biostatistics, focusing on the use of statistical methods to analyze biological data, the interpretation of statistical results, and the communication of statistical results to non-statisticians. It is required of all undergraduates in the biological sciences.

117:128 Introduction to Environmental Science

This course provides an introduction to the environmental sciences, focusing on the relationship between humans and the environment, the impact of human activities on the environment, and the role of science in addressing environmental problems. It is required of all undergraduates in the biological sciences.

117:129 Introduction to Molecular Biology

This course provides an introduction to the molecular biology of cells, focusing on the synthesis of genetic material, the regulation of gene expression, and the role of genes in development. It is required of all undergraduates in the biological sciences.

117:130 Introduction to Microbiology

This course provides an introduction to the microbiology of microorganisms, focusing on the structure and function of microorganisms, the interactions between microorganisms and their environment, and the role of microorganisms in biotechnology. It is required of all undergraduates in the biological sciences.

117:131 Introduction to Immunology

This course provides an introduction to the immunology of the immune system, focusing on the structure and function of immune cells, the regulation of immune responses, and the role of immune responses in disease. It is required of all undergraduates in the biological sciences.

117:132 Introduction to Genetics

This course provides an introduction to the genetics of organisms, focusing on the structure and function of genes, the regulation of gene expression, and the role of genes in evolution. It is required of all undergraduates in the biological sciences.

117:133 Introduction to Developmental Biology

This course provides an introduction to the developmental biology of organisms, focusing on the regulation of cell differentiation, the control of cell proliferation, and the role of signaling molecules in development. It is required of all undergraduates in the biological sciences.

117:134 Introduction to Neurobiology

This course provides an introduction to the neurobiology of the nervous system, focusing on the structure and function of neurons, the regulation of neural activity, and the role of neural circuits in behavior. It is required of all undergraduates in the biological sciences.
FAMILY PRACTICE

Head: Chester G. Driscoll
Professor: Charles S. Denicola; M. M. Tindal (Internal Medicine), George W. Willard
Associate professors: Elizabeth A. Bums, Craig L. Kimmel, John J. McQuaid, Walter J. Miller
Clinical associate professors: Robert L. Fishback, George J. Gamber, Robert K. Hackley, Paul K. Mathew
Assistant professors: Charles A. Savage, Gregory J. Salk, Richard Zabor, Donald G. Keeler, Kathryn D. Klem
Associate: Larry D. Zeh, Barnettop, Richard B. Noyes, Nicholas S. Calista, Juanita 0. Kimball, Dennis R. Weeks
Walter, John E. Wintre, Jn.

The Family Practice Program was instituted in response to the need for more primary care physicians in Iowa and throughout the nation.

Appropriate course work in the department is provided throughout the four-year M.D. program. The department's 18 elective senior options give students opportunities for exposure to various types of communities through work in affiliated hospitals or observation experiences in the department's clinical office on the University campus, and in preceptorships with selected family physicians throughout the state. There also is opportunity for independent study during the senior year.

The residency directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Practice. This residency trains physicians to provide continuing and comprehensive care to the local family unit and its community, to integrate the patient, family health professionals, and the physician into an efficient and effective health care team.

The program is flexible, allowing residents training in specific areas of medicine, such as internal medicine, pediatrics, obstetrics, and gynecology, psychiatry, medical and surgical specialties, and community medicine. The program currently offers 12 individual specialties.

The hospital-based clinical experience is a unique combination of experiences to practice in The University of Iowa Hospitals and Clinics, where the patients have been referred to physicians from all over the state, and in various community hospitals, where patient care is of a more general type of family practice.

During the first year, a large portion of the program is based at Iowa Hospital in Iowa City, where residents have the opportunity for local participation in the practice—both inpatient and outpatient—of the preceptors.

Residents are specifically designed to provide focused breadth of experiences. In the second and third years, residents spend increased time at the Family Practice Center and at The University of Iowa Hospitals and Clinics.

Facilities

The department office, located in the Student Health Service on the third floor of the main building, is the center of department activities. It contains faculty offices and the Family Practice Medical Office. Patient families are assigned to a resident with family supervision and are seen by appointment. Residents are responsible for the patient and visit any relative who remains with the patient during the appointment. Residents are responsible for the resident's role in the training program. Residents are placed on the teaching of the practice of medicine, including the organizational and administrative decisions made during patient care and the procedures and charting methods required to manage the practice.

Courses

115:201 Human Development in Medicine 1 cr.

115:301 Principles of Family Medicine 2 cr.

115:303 Family Practice 2 cr.

115:401 Community Medicine 1 cr.

115:500 Preventive Medicine 2 cr.

115:501 Preventive Medicine 2 cr.

115:502 Preventive Medicine 2 cr.

115:503 Preventive Medicine 2 cr.

115:504 Preventive Medicine 2 cr.

115:505 Preventive Medicine 2 cr.

115:506 Preventive Medicine 2 cr.

115:507 Preventive Medicine 2 cr.

115:508 Preventive Medicine 2 cr.

115:509 Preventive Medicine 2 cr.

115:510 Preventive Medicine 2 cr.
115-555 Faculty Practice for Physician Assistant
Dental.

115-555 Family Practice 2 for Physician Assistant n.

11494 Specialty Studies on Campus n.

11494 Graduate Nursing

11494 Graduate Programs n.

115-555 Family Practice II for Physician Assistant

11494 Graduate Nursing

GENETICS
Graduate degree: Ph.D. in Genetics

The Ph.D. program in genetics is an interdepartmental program 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 "Catalog of College of Liberal Arts sections of the Bulletin of for a list of participating faculty members, degree requirements, and course offerings.

HOSPITAL AND HEALTH ADMINISTRATION

Dwight J. Brown, M.D.
Professor Emeritus

Ralph H. Price, Ph.D.
Professor Emeritus

Graduate degrees: M.A., Ph.D. in Hospital and Health Administration

For more than forty years, The University of Iowa's Program in Hospital and Health Administration has educated health care executives to assume leadership roles in increasingly complex and dynamic health care systems. Consistently ranked among the foremost programs in the field, the program has produced graduates who hold key positions in all areas of health care 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 prepares students for positions in hospital, business development, and 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 graduates need to succeed in responsible managerial positions in hospitals, long-term care institutions, alternative delivery systems, ambulatory care facilities, planning agencies, consulting firms, and other health-related organizations.

First-year students examine the social, political, economic, and financial aspects of hospitals and health care organizations. At the same time, they are introduced to the concepts, tools, and techniques of effective managerial decision-making, planning, and control. Second-year students are exposed to advanced managerial concepts and applications to health care.

Sixty semester hours of graduate work are required for the degree. Required courses, totaling 39 semester hours and representing a course of disciplines and fields of knowledge, are carefully sequenced to establish a unified approach to learning. The 60-semester hour curriculum includes the following required courses:

- 600 Executive Seminar Series 0.5 h.
- 600-2000 Introduction to Health Care Organization 3 h.
- 600 Health Care Management 3 h.
- 600-2040 Quantitative Management in Health Care 3 h.
- 600-2050 Issues in Health Management 3 h.
- 600-2122 Intermediate Micro-Economic Theory 3 h.
- 600-213 Health Economics 3 h.
- 600-215 Financial Management of Health Institutions 3 h.
- 600-100 Managerial Decision Support Systems 3 h.
- 600-317 Legal Aspects of Health and Medical Care 3 h.
- 600-215 Accounting for Managers 1 h.
- 600-225 Financial Management 3 h.
- 600-220 Statistical Methods 3 h.
- 600-230 Electives 21 h.

At least 9 of these 21 semester hours shall be taken in the hospital and health administration program.

A thesis is optional for the master's degree but is recommended for students intending to pursue doctoral studies.

Health Care Analysis Specialization

The need for data analysts and health care managers who are specialists in quality assurance (QA) and utilization review (UR), or planning and increasing as information systems improve and health care organizations search for ways to improve quality and contain costs, respectfully, is in the emerging job market for health care analytics.

The University of Iowa often offers a concentration in health analytics within its M.A. program. The health analytics concentration offers both broad general management M.A. by including more advanced coverage of epidemiology, statistics, QA/UR, and health planning. Students learn to apply research methods, including small area studies, to a variety of health management activities.

Aging and Long-Term Care Specialization

The specialization in aging and long-term care was developed in conjunction with The University of Iowa Aging Studies Program to respond to two trends: the growing number of seniors and the increasing use of long-term care facilities and home health care. The aging and long-term care specialization positions graduates to fill the growing demand for qualified health care executives skilled in these areas.

The aging and long-term care specialization requires 45 hours of graduate work, including all required courses plus the following:

- 600-234 Administrative Residency in Aging and Long-Term Care 6 h.

The state of Iowa requires a total of 72 continuing education credits of "home" administrator. Residency hours may be completed throughout the program of study. The residency requirement may be satisfied during the graduate program. For more information contact the department at the conclusion of the didactic work.

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 may be earned for both degrees to be awarded. Of this exposure, 37.5 graduate credits may be taken in the hospital and health administration program. This dual-degree program can be completed in two and one-half years or less, depending on full- or part-time study.

Five-Year Program

The University of Iowa (U.S.) was the first institution in the nation to offer a five-year program in hospital and health administration with a concentration in health administration. This program, which was launched with a grant from the W.K. Kellogg Foundation, is designed to enable students to complete their baccalaureate and master's degrees in five years rather than the usual six.

Future eligibility for admission, students must complete all general requirements for a baccalaureate degree, additional requirements for both institutions by the end of the summer session of their senior year.
During the senior year, students are enrolled in the program in hospital and health administration with an emphasis on clinical administration. All students, regardless of major, are encouraged to continue their studies in health administration through the Graduate School.

Joint Programs

Joint programs provide an integrated curriculum combining a graduate degree in hospital and health administration with that of another field of study. The following programs have been established:

- M.A. in Business Administration
- M.A. in Public Administration
- M.A. in Social Work

Students interested in a joint program should contact the graduate program director for information on admission requirements and the sequence of courses.

Summer Internships, Fellowships, Residencies

The program provides placement of students in summer internships in hospitals and health agencies. Opportunities are available in all areas of health care administration, including clinical administration, hospital planning, and finance.

Doctor of Philosophy

The Ph.D. program is designed to prepare students for careers in health care management, research, and teaching. The program is designed to provide students with a strong foundation in health administration, as well as an in-depth understanding of the health care system.

Alumni Association

The Alumni Association is a network of professionals who have completed the program. The Association sponsors a variety of activities and events throughout the year, including networking events, educational programs, and social events.

Admission

Applicants to the master's program are required to have a baccalaureate degree from an accredited institution. Applicants to the Ph.D. program are required to have a master's degree in a health-related field, although other degrees will be considered. A 3.0 grade point average (on a 4.0 scale) is required.

Financial Aid

Approximately three-quarters of the students in the program receive some form of financial aid. The program provides financial aid to its students, including scholarships and loans. The program also provides a wide range of services to help students manage their financial aid.

Center for Health Services Research

The Center for Health Services Research (CHSR) was established in 1981 as the University's primary research center. The Center conducts research on a variety of topics, including the health care system, health policy, and health care delivery.
Courses

01:100 Science Seminar Series 3 h.

01:300 Introduction to Health Care Organizations 3 h.

02:100 Health Care Management 3 h.

03:302 Hospital Organization and Management 3 h.

03:303 Management and Marketing in Health Care Organizations 3 h.

03:304 Quantitative Management in Health Care Organizations 3 h.

03:305 Insurance for Health Care 3 h.

03:404 Management of Alternative Delivery Arrangements 3 h.

03:500 Health Policy and Administration 3 h.

03:501 Health Informatics 3 h.

03:502 Health Education 3 h.

03:503 Intermediate Micro-Discussion 3 h.

03:504 Social and Behavioral Science Clinical Skills 3 h.

03:506 Financial Management of Health Institutions 3 h.

03:507 Clinical Management of Health Institutions 3 h.

03:508 Family Planning 3 h.

03:509 Managerial Decision Support Systems 3 h.

03:511 Health Information Systems 3 h.

03:522 Administrative Systems 3 h.

5.00:601 Quality Assurance and Utilization Review in Health Care 3 h.

5.00:602 Health Services Research I 3 h.

5.00:603 Health Services Research II 3 h.

5.00:604 Independent Study and Research 3 h.

5.00:605 Independent Study and Research 3 h.

5.00:606 Independent Study and Research 3 h.

5.00:607 Independent Study and Research 3 h.

5.00:608 Independent Study and Research 3 h.

HUMAN NUTRITION

Dietetics: Elzbieta F. Szydłowski

Pharmacology: Robert B. Rothman (Internal Medicine), Edward F. Bell (Pathology), Christy Ann M. DeMarino (Internal Medicine), George C. Donnelly (Pathology), Kenneth B. Campbell (Pathology and Biophysics), Robert A. Clark (Pathology), Michael A. Davis (Pharmacology), John S. Desotale (Bacteriology), Jeffrey Field (Biochemistry), Aaron J. Yorin (Pharmacology), Alan C. Goodridge (Bacteriology), Jason W. VanHoesen (Pharmacology), George A. Griswold (Internal Medicine)

Clinical: Thomas G. F. Shafter, Madeleine M. Lauer (Pediatrics), John F. Unger (Pathology), Freida M. L. (Internal Medicine), Donald M. MacKenzie (Internal Medicine), Richard V. Black (Internal Medicine), Jeffrey S. Feingold (Pharmacology), William J. Wollman (Pharmacology), John M. Helbok (Pharmacology), Robert A. Talbot (Bacteriology), Alexander Smith (Anatomy, Art History, Pharmacology/Infectious Diseases), Darly G. S. C. de Souza (Bacteriology), Robert B. Young (Virology, Immunology, Epidemiology, Infection Control, and Tropical Medicine)

Research: Elizabeth A. Coyle (Environmental Health), Elizabeth A. Coyle (Environmental Health), Elizabeth A. Coyle (Environmental Health)

Interdisciplinary: Elizabeth A. Coyle (Environmental Health), Elizabeth A. Coyle (Environmental Health), Elizabeth A. Coyle (Environmental Health)

Elective Courses

3.00:154 Principles of Epistemology 3 h.

5.00:193 Introduction to Medical Ethics 3 h.

5.00:194 Introduction to Medical Ethics and Values 3 h.

5.00:212 Medical Ethics 3 h.

9.00:183 Immunology for Medical Students 3 h.

9.00:184 Biochemistry and Molecular Biology (Biology) 3 h.

ELECTIVE COURSES

6.00:158 Principles of Epistemology 3 h.

5.00:193 Introduction to Medical Ethics 3 h.

5.00:194 Introduction to Medical Ethics and Values 3 h.

5.00:212 Medical Ethics 3 h.

9.00:183 Immunology for Medical Students 3 h.

9.00:184 Biochemistry and Molecular Biology (Biology) 3 h.

6.00:147 Survey of Immunology 3 h.
MEDICAL SCIENTIST TRAINING PROGRAM

Director: Robert E. Ficker (Pathology and Immunology)
Associate director: Samuel Johnson (Microbiology)

The Iowa Medical Scientist Training Program is a graduate training program that prepares trainees for careers in academic medicine, with emphases on preclinical and clinical research. To accomplish this, the program provides efficient integration of graduate education, doctoral research training, and all clinical studies necessary for the medical degree. Requirements for both the M.D. and Ph.D. degrees can be completed in approximately seven years of combined study.

In the first two years of the program, trainees are associated primarily with the College of Medicine for the basic science and introductory clinical portions of their curriculum. The basic science core of the first two semesters consists of formal courses in biochemistry, histology, anatomy, embryology, biochemistry, hematology, virology, physiology, microbiology, neurosciences, general and clinical pathology, pharmacology, and preventive medicine. These courses provide the language and organizing concepts of the preclinical sciences that are the foundation for subsequent training in both research and clinical medicine.

During the summer between the first and second years, trainees engage in research under the supervision of a member of the program faculty. Entering medical students also may choose to do research during the summer before their first year. In the second semester of the second year, trainees enroll in an introduction to clinical medicine course that provides instruction and practice in medical history taking, physical diagnosis, and clinical skills. This course is taught in small groups to trainees who have taken four years of premedical education.

In the summer of the second year, trainees are encouraged to leave campus to engage in clinical rotations in various settings, including primary care. This early clinical component integrates scientific and clinical aspects of the program and provides an overview of research needs in the health care system. Each student works in small groups with a physician or with clinical medicine during the graduate phase of the program through participation in weekly clinical conferences and voluntary clinical activities.

In years three through six, the graduate phase of the program, trainees enroll full-time in the departments they select at the start of their second year. This graduate experience is designed to prepare trainees for careers in independent research. Graduate training is supervised by departmental faculty and is pursued with the rigor and standards applied to all doctoral students at the University of Iowa.

Trainees take advanced courses while defining their selection of a thesis problem and advisor. After completion of required courses and qualifying examinations, trainees focus on original research. The essential requirement for the doctoral Degree. While it is not possible at the outset to predict the amount of time that each segment of the program will require, most trainees complete the Ph.D. research and thesis defense in approximately four years.

Immediately after completing graduate study, trainees review the medical curriculum to begin the final year of clinical clerkships. They return to the clinical environment with a wealth of information and sophistication in laboratory science that can be applied to problems of human disease, and as the final year progresses, they continue to develop the clinical skills they began to acquire in the second year of the program. After completing the clerkship year, trainees in the M.D. and Ph.D. degrees.

Financial Aid

Trainees admitted to the first year of the program receive stipends and tuition remission provided by a Medical Scientist Training Program supported by an Institutional National Health Service (NHIS) Research Grant. Support from this grant and/or institutional sources is continued through completion of the combined degree programs, provided the trainee's progress remains satisfactory. Support for trainees admitted to advanced standing in the program is arranged on an individual basis.

Admission

Applicants must meet requirements for admission to the College of Medicine and the Graduate College at The University of Iowa.

Trainees are expected to have completed requirements for a bachelor's degree at an accredited academic institution. In addition to outstanding academic credentials, including grades in biological, physical, and mathematical sciences, applicants should demonstrate aptitude and interest in scientific research, usually through productive research experience or undergraduate activities. Applications are accepted from students who request extensions in the fall of the year of entrance into the program. Consideration is also given to applicants for extensions based on financial standing from individuals currently enrolled in the College of Medicine at The University of Iowa.

Application Procedures

The University of Iowa College of Medicine participates in the American Medical College Application Service (AMCAS). Program applicants should submit the AMCAS to forward state credentials to the College of Medicine (AAMC) as soon as possible after June 15. At the time of application, applicants should apply to the Medical Scientist Training Program using the AMCAS application. Applications to the Medical Scientist Training Program are reviewed by the program selection committee after AMCAS applications are received.

The deadline for receipt of applications is December 1. Applicants should be submitted as early as possible to facilitate review by both the College of Medicine and the program selection committee. Equal considerations is given to all applicants regardless of their state of residence.

Courses

50322MST Summer Research Opportunities Open only to students in the Medical Scientist Training Program.

MEDICAL TECHNOLOGY

See "Diplomats of Associated Medical Sciences."
and research programs. For example, courses and seminars in clinical laboratory medicine, immunology, genetics, cellular and molecular biology, and electron microscopy are taught on the interdepartmental basis.

Master of Science
Conditions for the M.S. are required to take a minimum of 12 semester hours of microbiology courses in three of the different subdivisions 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 requirement or selection depend upon 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 subdivisions of the seven subdivisions available in microbiology or 15 semester hours of courses taken 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 must pass a comprehensive examination and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

Facilities
The department shares the Bowen Science Building with the Departments of Anatomy, Biochemistry, Pharmacology, and Psychology, and Biophysics. Laboratory space and modern equipment are available for teaching and research.

Admission
Prospective graduate students should familiarize themselves with the general admission requirements of the Graduate College. Departmental requirements include a review of past performance by the faculty and students admitted. Before beginning graduate work, students must have completed courses in biological sciences, chemical (organic and inorganic), mathematics including calculus and physics. Students admitted without the above course work must take it during the first year of graduate school. Students should have at least a 3.50 grade-point average to be admitted to the graduate program in microbiology. Preference is given to students applying for the Ph.D. program.

Courses
Microbiology majors may not use 61-218 to fulfill the seminar hour requirement for their degrees.

61-200 Cooperative Education Internship
C h a p t e r 61

61-103 Medical Microbiology

61-112 Health Science Microbiology

61-147 Survey of Immunology

61-157 General Microbiology

61-159 Pediatric Bacteriology

61-160 Medical Microbiology

61-161 Problems in Immunology

61-162 Seminar in Microbiology

61-164 Microbiology

61-166 Clinical Laboratory Science

61-167 Molecular Immunology

61-168 Introduction to Animal Viruses

61-170 Medical Genetics

61-171 Human Immunology

61-172 Laboratory Methods in Cellular Immunology

61-173 Laboratory Methods in Cellular Immunology

61-177 Molecular Genetics

61-179 Bacterial Diversity

61-200 Medical Microbiology
Financial Aid

Graduate students in the Molecular Biology Ph.D. Program receive stipends and tuition support from institutional and extramural sources, including training grants from the National Institute of Health as well as the University of Iowa fellowship and graduate research assistantships.

Facilities

Training is conducted primarily in laboratories and teaching facilities of the Departments of Biochemistry, Biology, Microbiology, and Pharmacology—where each graduate degree and the Department of Internal Medicine, Pathology, and Pediatrics, whose focus is clinical. Faculty laboratories and clinical research facilities available to students provide access to the most up-to-date research equipment, including an edgecliff microscope and an automated DNA sequence analysis system.

Admission

Individuals seeking application materials and information about graduate training in molecular biology should contact the Molecular Biology Ph.D. Program.

Courses

422-219 Molecular Biology I 3 cr.
Mechanisms, regulation of RNA, DNA, protein interplay in processes, students in an introductory laboratory for research laboratories, are interested in expanding their participation in research projects. Preparation: MCB 211, EMB 235, 236.

422-231 Molecular Biology II 3 cr.
Mechanisms, regulation of RNA, DNA, protein interplay in processes, students in an introductory laboratory for research laboratories, are interested in expanding their participation in research projects. Preparation: MCB 211, EMB 235, 236.

422-250 Seminar in Molecular Biology I 1 cr.
required of all students throughout the first and second years.

In addition, all students are required to complete a 3-hour laboratory course in four or more approved elective courses.

After successful completion of the comprehensive examinations, students advance to candidacy for the Ph.D. degree, whereupon they write a full-time effort to complete their research and writing the Ph.D. dissertation. Upon successful completion of all requirements, including the dissertation and its defense in accordance with rules and regulations of the Graduate College, students are awarded the Ph.D. degree in molecular biology.
Residency Program
The department is approved for 20 residency positions in pathology, covering a rotation age of up to five years. The programs are designed to utilize the patient population of The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center. There is systematic rotation through the various laboratory services, including surgical pathology, autopsy pathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, and transplantation center. There is also opportunity for one or two 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 externalships and a variable number of fellowships for postdoctoral trainees in any of the areas of anatomical and clinical pathology. One of the externalships is a full-time research position in the areas of experimental pathology.

Postdoctoral Training
The Department of Pathology offers postdoctoral programs in hematology, immunopathology, transfusion medicine, laboratory medicine, microbiology, cytopathology, neuropathology, and surgical pathology for physicians who have completed at least two years of residency training in pathology. The postdoctoral training consists of one year of diagnostic work and one year of laboratory research. The department also provides postdoctoral research training in histology, neuropathology, biochemistry of hemoglobins, 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 specified technologies of modern cellular and molecular pathology. It administers the 45,000 square feet of clinical laboratories of the University of Iowa Hospitals and Clinics and has individual research and core facility laboratories for cellular and molecular pathology research in the Veterans Affairs and Clinical Research Center, Medical Laboratories, and at the Veterans Affairs Medical Center. Also available are the College of Medicine Core Laboratories for nucleic and chemical, histological, production, flow cytometry, ultramicroscopic studies, protein structure, image analysis, and laboratory animal care.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>09-099</td>
<td>Cooperative Education Internship</td>
<td>0.50</td>
<td>Work in a hospital, research, entrepreneurial, or industrial laboratory setting. Open only to medicall students.</td>
</tr>
<tr>
<td>09-116</td>
<td>Principles of Human Pathology</td>
<td>3.75</td>
<td>Taught in a department lecture, the clinical pathology laboratory, gross dissection, histology, and research. Open only to medical students.</td>
</tr>
<tr>
<td>09-118</td>
<td>Immunohematology in Clinical Laboratory Science</td>
<td>3.75</td>
<td>The principles of immunohematology laboratory as used in the clinical laboratory setting and in the clinical laboratory department. Open only to medical students.</td>
</tr>
<tr>
<td>09-120</td>
<td>Clinical Microbiology for the Medical Technologist</td>
<td>3.75</td>
<td>The laboratory principles and applications of bacteriology, microbiology, and mycology in the medical laboratory setting. Open only to medical students.</td>
</tr>
<tr>
<td>09-121</td>
<td>Immunology in Clinical Laboratory Technology</td>
<td>3.75</td>
<td>The principles of clinical immunology as used in the clinical laboratory setting. Open only to medical students.</td>
</tr>
<tr>
<td>09-122</td>
<td>Clinical Chemistry for the Medical Technologist</td>
<td>3.75</td>
<td>The principles of clinical chemistry as applied to clinical chemistry in the clinical laboratory setting. Open only to medical students.</td>
</tr>
<tr>
<td>09-123</td>
<td>Hematology in Clinical Laboratory Technology</td>
<td>3.75</td>
<td>The principles of clinical hematology as applied to clinical hematology in the clinical laboratory setting. Open only to medical students.</td>
</tr>
<tr>
<td>09-124</td>
<td>Clinical Microbiology for the Medical Technologist</td>
<td>3.75</td>
<td>The principles of clinical microbiology as applied to clinical microbiology in the clinical laboratory setting. Open only to medical students.</td>
</tr>
<tr>
<td>09-125</td>
<td>Clinical Microbiology for the Medical Technologist</td>
<td>3.75</td>
<td>The principles of clinical microbiology as applied to clinical microbiology in the clinical laboratory setting. Open only to medical students.</td>
</tr>
<tr>
<td>09-126</td>
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<td>3.75</td>
<td>The principles of clinical laboratory medicine as applied to clinical laboratory medicine in the clinical laboratory setting. Open only to medical students.</td>
</tr>
<tr>
<td>09-127</td>
<td>Clinical Immunology in Clinical Laboratory Technology</td>
<td>3.75</td>
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</tr>
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<td>09-128</td>
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<tr>
<td>09-130</td>
<td>Clinical Laboratory for Physicians and Medical Technologists</td>
<td>1.50</td>
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</tr>
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<td>09-131</td>
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</tr>
</tbody>
</table>
Prerequisites for graduate study include undergraduate background in chemistry, biology, and mathematics. The level of performance in undergraduate courses must be in the top quarter.

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. Satisfaction completion of the following two 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 instructor if he or she believes the departmental faculty agree that the student has met these satisfactorily at a prior time.

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 student must audit 71:201 Pharmacology for Graduate Students and take additional courses in the research training unit selected and appropriate to his or her program. Eligibility for the M.S. in pharmacology requires demonstrated productivity in build 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 Biochemistry 1 s.h.
71:135 Principles of Drug Action 2 s.h.
71:201 Pharmacology for Graduate Students 4 s.h.
71:203 Pharmacology Research 1 s.h.
71:204 Pharmacology Seminar 1 s.h.
71:209 Neurons and Signal Transduction 3 s.h.
71:210 Medical Pharmacology 6 s.h.
99:120 Biochemistry and Molecular Biology 4 s.h.
99:130 Biochemistry and Molecular Biology 4 s.h.

The student must also take additional courses in the research training unit selected (e.g., 71:207 Neuropharmacology). Individual faculty research groups may require additional coursework.

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 to lies of a preliminary examination, students must submit to the director of graduate studies a manuscript of a progress report detailing research accomplished during the first two years of study. After reviewing these reports with a committee of the faculty, the student begins to write their Ph.D. thesis research. The Ph.D. comprehensive examination (written and oral) is given at the end of the fifth semester. Successful completion of this examination, preparation and oral defense of the thesis complete the program.

Financial Aid

Financial support is available for all predocotoral and postdoctoral positions in pharmacology.

Courses

71:100 Biochemistry 3 s.h.
71:135 Principles of Drug Action 2 s.h.
71:201 Pharmacology for Graduate Students 4 s.h.
71:203 Pharmacology Research 1 s.h.
71:204 Pharmacology Seminar 1 s.h.
71:208 Clinical Pharmacology and Therapeutics Lecture Series 2 s.h.

The training must audit 71:201 Pharmacology for Graduate Students and take additional courses in the research training unit selected and appropriate to his or her program. Eligibility for the M.S. in pharmacology requires demonstrated productivity in build research, satisfactory performance on the qualifying examination (written and oral), and satisfactory preparation and defense of a research thesis.

Pharmacology

Pharmacology: The Science of Medicinal Chemistry 3 s.h.
Pharmacology, experimental approaches to drug design, medicinal chemistry, pharmacology, toxicology, experimental therapy, experimental biology, ethics, terminal exam, final examination. Offered fall semester. Consent of instructor required. Prerequisites: 71:135, 71:100, and 71:140, or equivalent.

Pharmacology for Clinical Sciences: Medical 5 s.h.
Pharmacology course based on principles of pharmacology, emphasis on drugs, drugs, drugs. Applications to a wide variety of clinical situations and concepts of course design. Consent of instructor required. Prerequisites: 72:210 and 72:211 or equivalent.

Pharmacology for Health Sciences: Basic 5 s.h.
Principles of pharmacology, emphasis on drugs, drugs, drugs, drugs, drugs. Applications to a wide variety of clinical situations and concepts of course design. Consent of instructor required. Prerequisites: 72:210 and 72:211 or equivalent.

71:100 Undergraduate Research Independent Study 1-2 s.h.
Research on drugs, chemicals that influence biological systems.
71:120 Drugs, Their Modes, Actions, and Use 2 s.h.
Principles of drug action, dosage, toxicity, drug interactions. Offered spring semester. Consent of instructor required. Prerequisites: 71:135, 71:140, and 71:201 or equivalent.

Pharmacology for Health Sciences: Clinical 5 s.h.
Principles of pharmacology, emphasis on drugs, drugs, drugs, drugs, drugs. Applications to a wide variety of clinical situations and concepts of course design. Consent of instructor required. Prerequisites: 72:210 and 72:211 or equivalent.

71:120 Intermediate Pharmacology 3 s.h.
Principles of pharmacology, emphasis on drugs, drugs, drugs, drugs. Applications to a wide variety of clinical situations and concepts of course design. Consent of instructor required. Prerequisites: 71:135, 71:140, and 71:201, or equivalent.

71:130 Intermediate Pharmacology 3 s.h.
Principles of pharmacology, emphasis on drugs, drugs, drugs, drugs. Applications to a wide variety of clinical situations and concepts of course design. Consent of instructor required. Prerequisites: 71:135, 71:140, and 71:201, or equivalent.

College of Nursing: Thesis requirements. Offered spring semester.

71:135 Principles of Drug Action 3 s.h.
Principles of pharmacology, emphasis on drugs, drugs, drugs, drugs. Applications to a wide variety of clinical situations and concepts of course design. Consent of instructor required. Prerequisites: 71:135, 71:140, and 71:201, or equivalent.

71:201 Pharmacology for Graduate Students 4 s.h.
Principles of pharmacology, emphasis on drugs, drugs, drugs, drugs. Applications to a wide variety of clinical situations and concepts of course design. Consent of instructor required. Prerequisites: 71:135, 71:140, and 71:201, or equivalent.

71:203 Pharmacology Research 1 s.h.
71:204 Pharmacology Seminar 1 s.h.
71:208 Clinical Pharmacology and Therapeutics Lecture Series 2 s.h.

Research in the College of Medicine: experimental approaches to drug design, medicinal chemistry, pharmacology, toxicology, experimental therapy, experimental biology, ethics, terminal exam, final examination. Offered fall semester. Consent of instructor required. Prerequisites: 72:210 and 72:211 or equivalent.

71:201 PhD Seminar 1 s.h.
71:202 PhD Seminar 1 s.h.
71:203 PhD Seminar 1 s.h.
71:204 PhD Seminar 1 s.h.
71:205 PhD Seminar 1 s.h.
71:206 PhD Seminar 1 s.h.
71:207 PhD Seminar 1 s.h.
71:208 PhD Seminar 1 s.h.
71:209 PhD Seminar 1 s.h.
71:210 PhD Seminar 1 s.h.
71:211 PhD Seminar 1 s.h.
71:212 PhD Seminar 1 s.h.
71:213 PhD Seminar 1 s.h.
71:214 PhD Seminar 1 s.h.
71:215 PhD Seminar 1 s.h.
71:216 PhD Seminar 1 s.h.
PHYSICIAN ASSISTANT PROGRAM

See "Director of Associated Medical Sciences."

PHYSIOLOGY AND BIOPHYSICS
Head: Robert S. Waltz

Professors: Francis M. Alcorn (Internal Medicine), Kevin P. Carney, Robert S. Waltz, Carl S. Gralnick (Biomedical Science), Richard A. Meyer, Jeffrey Pines, Michael J. Walsh (Internal Medicine), Charles C. Wunder

Assistant professors: Eliyahu R. Nitsky, Herbert J. Schlesinger, Thomas I. Sebree, D. Stephen Siegel

Adjunct professors emeriti: Charles J. Hawley, Gerald W. Smith

Assistant professors: Holly B. Cline, Wayne Schrader, Gay Lee Keeney (Internal Medicine), Robert Mostofi, Steve Reisner, Andrew Ross, George V. Shbana, Curt Spiegler (Internal Medicine.)

Graduate degree programs: Ph.D. in Physiology and Biophysics

The Department of Physiology and Biophysics offers graduate study leading to the Doctor of Philosophy in indicated teaching in physiology and biophysics for medical, dental, pharmacology, and other health professional students; and participates in the Medical School Training Program, a combined M.D.-Ph.D. program conducted under the auspices of the Graduate College and the College of Medicine.

Graduate Program

The graduate program in physiology and biophysics is designed to provide broad general knowledge of fundamental life processes at the molecular, cellular, and organ levels, as well as an opportunity for intensive study in major areas of physiology and biophysics with emphasis on endocrinology, neurobiology, and neurochemistry. The program focuses on the development of modern research skills and their application in the conduct of original dissertation research.

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 the faculty. The core curriculum includes four semesters of required courses, with an additional laboratory facility in the Beckman Medical Research Building and one additional laboratory facility in the Barbour Science Building. The department also offers advanced, specialized courses in molecular biology, molecular medicine, radiation biology, environmental and exercise physiology, and neurobiology. Students elect to take courses in other departments appropriate to their individual research and research objectives.

After completing course work and performing satisfactorily on a comprehensive examination, based on an original research proposal, students devote themselves full time to research that culminates in the preparation of a doctoral dissertation and defense in a final examination.

All degree candidates have supervised experience as classroom observers and teaching assistants in part of their graduate program.

Admission

Applicants for graduate study must: (1) be graduates of an accredited college in medicine or the equivalent; (2) have completed a minimum of 3.00 science grade points average, coupled with a combined verbal and quantitative score of at least 1230 on the Graduate Record Exam; and (3) have evidence of research experience in a biological, chemical, physical, or biophysical, or engineering scientist with appropriate training in a biological, genetics, physics, chemistry, and calculus.

Financial Aid

All full-time doctoral students receive financial aid in the form of tuition, stipend, and support from the Department of Physiology and Biophysics. Support is reviewed annually and based on satisfactory progress in meeting requirements for the Ph.D. degree.

Research

The major research interests of the Department are in molecular and cellular endocrinology, cellular and developmental neurobiology, and radiation biology and biophysics. Specific areas of interest include hormone receptors, reproductive endocrinology, cell differentiation, regulation of gene expression, synaptic transmission, neurotransmitter, ion channels, regulation of excitability, cardiovascular electrophysiology and regulation.

Facilities

The Department of Physiology and Biophysics occupies a two-story building in research and teaching in the Brown Science Building and has the addition of nine laboratories in the Beckman Medical Research Building and in the nearby Oakville campus. In addition to specialized equipment in faculty research laboratories, the department has an extensive microcomputer network with direct access to University of Illinois computer and supercomputers and a computer imaging facility. The department also provides fluorescence microscopy, confocal microscopy, and equipment for cell culture and molecular biology. Graduate students have access to all laboratories on the campus.

Courses

72.102 Human Physiology 4 s.h.

Basic concepts. Open only to medical physics, anesthesiology, cardiac surgery, and nuclear medicine students, or to others with consent of course director. Separation of lighter ending material. Offered fall semester and 2.0 or 2.5 or 4.0 or 6.0 credit hours.

72.105 Intermediate Physiology 4 s.h.

Philosophical issues, nuclear biology, cellular and molecular physiology, cardiovascular and endocrine systems. Offered spring semester. Credit of 4.0 or 6.0 credit hours.

72.112 Human Physiology 4 s.h.

Principles, organ systems, cell function. Open only to dental medicine. Offered spring semester. Consent of course director required.

72.114 Biological Engineering Physiology 4 s.h.

Principles, organ systems, cell function. Open only to biomedical engineering students. Offered spring semester. Consent of course director required.

72.144 Human Physiology for Physicians Assistant 4 s.h.

Principles, organ systems, cell function. Consent of course director required.

72.201 Molecular Endocrinology 4 s.h.

Hormones, cell biology, synthesis and action of hormones, synthesis, structure, interaction, function from the molecular level to cellular and organismal levels. Offered spring semester. Consent of course director required.

72.204 Cell Biology 2 s.h.

72.206 Neurophysiology and Signal Transmission 2 s.h.

Nerve impulse generation, synaptic transmission, spinales transmission, receptor-membrane interactions, neuronal chemistry, cellular and molecular biology, and functional neurology. Consent of course director required.

72.207 Medical Physiology 4 s.h.

Principles of human physiology; basic principles, cell function. Open only to medical students. Offered spring semester. Consent of course director required.

72.210 Cell Biology 1 s.h.

Organization and function of the eukaryotic cell. Offered fall semester. Consent of course director required.

72.211 Cellular Mechanobiology 2 s.h.

Cellular basis of normal and abnormal functions, properties of normal and abnormal cells, signaling mechanisms, angiogenesis. Consent of course director required.

72.212 Cell Biology II 1 s.h.

Principles of cell biology including a broad overview of the molecular basis of life. Consent of course director required.

72.234 Structural Biology 2 s.h.

Principles of biochemistry, cell biology, and biochemistry of metabolism, regulation of gene expression, cell cycle, and development. Consent of course director required.

72.241 Structure and Function of Biological Macromolecules 2 s.h.

Carbohydrate, lipids, lipopolysaccharides, nucleic acids, and proteins. Structure and function of biological macromolecules, and their role in cell transport, hormone action, and immunity. Consent of course director required.

72.255 Cellular Pathology 4 s.h.

Basic morphology and clinical aspects of diseases. Smooth muscles and their function, smooth muscle function, smooth muscle cell structure and function. Offered spring semester. Consent of course director required.

72.259 Developmental Biology 1 s.h.

Basic morphology and clinical aspects of diseases. Smooth muscles and their function, smooth muscle function, smooth muscle cell structure and function. Offered spring semester. Consent of course director required.

72.266 Neuronal Physiology 4 s.h.

Research on neuronal transmission, receptor, and channel currents. Consent of course director required.

72.273 Seminar in Cellular and Molecular Biology 2 s.h.

Research and literature in cell, molecular biology, information transfer and regulation, and development and interventions. Consent of course director required.

72.274 Basic Physiology Seminar 2 s.h.

Anatomy, physiology and electrophysiology of cells. Consent of course director required.

72.275 Seminar in Physiology 2 s.h.

72.312 International Physiology 2 s.h.

Principles, organ systems, cell function. Consent of course director required.

72.313 International Neurology 2 s.h.

Principles, organ systems, cell function. Consent of course director required.

72.314 International Physiology 2 s.h.

Principles, organ systems, cell function. Consent of course director required.

72.315 International Neurology 2 s.h.

Principles, organ systems, cell function. Consent of course director required.

72.316 International Physiology 2 s.h.

Principles, organ systems, cell function. Consent of course director required.

72.317 International Neurology 2 s.h.

Principles, organ systems, cell function. Consent of course director required.

72.318 International Physiology 2 s.h.

Principles, organ systems, cell function. Consent of course director required.
PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH

Health Robert E. Wallace
Associate professors: Cindy Surratt, Shari F. Sommers, Peter Harnage, L. W. Kemph, Kevin L. Linn, Donald P. Nighon, Richard L. Berkman
Assistant professor emeritus: Franklin Klippstein, Kenneth MacKinnon, Morton Hecht
Assistant associate professors: Mark Adams, Robert T. Weyant, Richard Traylor
Assistant professor: Elizabeth A. Arrington, Jeffrey D. Brown, N. Darrell Burford, Quaker E. Lench, Ronald G. Mumpower, Stephen E. Mitchell, J. Selma, Craig S. Pettigrew
Assistant professor emeritus: Lois Beccewicz
Adjunct associate professors: Stephen Arebalo, Russell C. Carden, Karen Requaert, Linda Swedt
Graduate school M.S., Ph.D. in Preventive Medicine and Environmental Health

Preventive medicine relates to the individual subject when the application of knowledge and techniques from biology, medical, social, and behavioral science are applied to prevent disease or its progression. It relates to the health of the entire population when the knowledge and skills of medical and allied sciences are applied in an organized community effort to maintain and improve the health of populations.

Departmental research and teaching activities are conducted within three divisions: biostatistics, epidemiology, and occupational and environmental health. Faculty of the division of biostatistics work closely with both clinical and basic science investigators throughout the health center to design and analyze research projects; they also work independently to study problems of statistical theory and develop new analytic methods.

Concerns of the epidemiology faculty include health care organization and delivery, factors for disease in the community, development of behavioral factors in disease, and establishment of disease control measures in the community. Occupational and environmental health faculty are concerned with assessment of disease in the physical environment and their relationship to disease. Of particular interest are the health problems of agricultural and industrial workers.

Examples of ongoing departmental research and activities include the State Health Registry of Iowa, which records in clinical files data on all cases of cancer and birth defects that occur in residents of Iowa; the Aging Project, which examines health problems and needs of a representative sample of Iowa's elderly; the Preventive Intervention Center; the University Occupational Health Service, WORKSAFE Iowa; the Biostatistical Consulting Service; the Center for International Health, Education, and Environmental Contaminations; and the Clinical Trials Data Management Center, which serves the statistical design, data management, and analytical 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 of Iowa Hospital and Clinics, the Environmental Health and Safety Program, the Graduate Program in Hospital and Health Administration, the Center for International Health, Education, and Environmental Contaminations, the Health Services Research Center, and the Department of Internal Medicine's division of clinical epidemiology.

Graduate Programs

The master's program offers a degree with emphasis in occupational and environmental health, biostatistics, or community health. Admission to the community health track is limited to those who already are health professionals. The Ph.D. program is available with an emphasis in biostatistics, epidemiology, or occupational and environmental health.

While pursuing a degree, students are expected to complete a 3.00 quality point average, in addition, students who receive 7 semester hours or more of grades of C or lower in their dissertation course work are dismissed from the program. A joint master's option exists between the Program in Urban and Regional Planning and the Department of Preventive Medicine and Environmental Health in the College of Public Health. This option results in an M.A. or an M.S. in planning and an M.S. in preventive medicine and environmental health. Specific admission to both academic units are required. (See Urban and Regional Planning in the College of Liberal Arts section of the Catalog.) The combined graduate-level course of study between the Physician Assistant Program and the Department of Preventive Medicine and Environmental Health provides a broad foundation in preventive medicine. This 2-year master's curriculum consists of 26 semester hours of graduate courses in epidemiology, environmental health, biostatistics, and preventive medicine, and 95 semester hours of course work made up of the standard core curriculum of the Physician Assistant Program.

Electives may be selected from a wide range of course offerings in the Department of Preventive Medicine and Environmental Health and in other departments in the College of Public Health. Upon completion of the program, students earn an M.S. in the Physician Assistant Program from the College of Medicine and an M.S. in preventive medicine and environmental health from the College of Graduate. The program is described in detail under "Physician Assistant Program" in the College of Associated Medical Sciences section of the Catalog.

The Culinary College has approved a proposal to change the joint program so that students would earn an M.S. in Preventive Medicine and Environmental Health in the Culinary College and an M.S. in Preventive Medicine from the College of Medicine.

Admission

Application deadlines for U.S. citizens are July 15 for fall semester; November 1 for spring semester; and May 1 for summer session. These deadlines apply only to University of Iowa and non-Iowa University of students. Application deadlines for foreign students are April 15 for fall semester; October 1 for spring semester; and March 1 for summer session. Minimum grade-point average requirements are 2.70 for admission to the master's program and 3.00 for the Ph.D. Applicants must have taken the Graduate Record Examination (GRE). The recommended score for most students is a combined verbal and quantitative score of 1,000 or higher. Also, if required by the University of Iowa, foreign applicants, non-U.S. citizens must complete the Test of English as a Foreign Language (TOEFL); minimum combined score of 600 is considered acceptable for most students. Students whose English courses are required for foreign students whose TOEFL score is between 500 and 600. Scores of 525 or lower may warrant rigorous evaluation.

Applicants must have an undergraduate cohort or course background in science or mathematics, depending on their proposed program of graduate study. However, in order to be considered for a degree program with emphasis in community health, applicants must provide evidence or be pursuing an advanced degree in the health sciences and have experience in preventive medicine and environmental health principles to their respective professional activities.

Applicants who meet the requirements for the M.S. or Ph.D. programs but who do not wish to take the master's component of the program are admitted or "professional status". Also, applicants are required to specify on the application form the programs in the college in which they are applying and to submit three letters of recommendation, a short description of their professional goals and why they want the degree, and a current resume.

Financial Aid

A limited number of research assistantships, teaching assistantships, and tuition grants are available within the department.

Institute of Agricultural Medicine and Occupational Health

The Institute of Agricultural Medicine and Occupational Health is the first agency in the western two-thirds of the United States dedicated to the study of occupational health problems of the agricultural
Radiation Biology • Medicine 421

4.386 Environmental Health 1 s.h.
Schedules: Fr. 4:00 p.m. - 5:30 p.m. This course emphasizes the recognition of the role of the environment in creating or mitigating the development of cancer, diabetes, cardiovascular disease, obesity, and other chronic conditions. Offered with five different instructors. Offered by appointment. 4.386

4.391 Survival Data Analysis 1 s.h.
Powerful biostatistics & biostatistical methods in biomedical science. Methods of longevity, survival, and hazard functions and the analysis of survival data. Cross-listed as 6.165. Offered with one of five different instructors. Offered by appointment. 4.391

4.392 Analysis of Categorical Data 1 s.h.
Course covers the basic tools used to study categorical data, including contingency tables, log-linear models, logistic regression, and chi-square analysis. Cross-listed as 6.202. Offered during spring semester. 4.392

4.394 Longitudinal Data Analysis 1 s.h.
Statistical methodology for analyzing data from longitudinal studies, with an emphasis on general linear models and the analysis of repeated measures. Cross-listed as 6.204 and 1.570 and 1.105 or consent of instructor. 4.394

4.397 Research Data Management 1 s.h.
Management of research data, especially large clinical trials, through the data management cycle, from study design to report submission. Cross-listed with 6.176. Offered with one of five different instructors. Offered by appointment. 4.397

4.357 Medical Statistics II 1 s.h.
Continuation of 4.257, concerning survival, logistic regression, epidemiologic studies, regression modeling, and the use of statistical software. Cross-listed with 1.576. Offered during fall semester. 4.357

4.382 Environmental and Biomedical Health Seminar 0.1 s.h.
Current topic in environmental health, agriculture, or occupational health. Cross-listed with 1.382 and 1.563. 4.382

4.384 Studies on Occupations 1 s.h.
Experiential or seminar course to problem in environmental health. Cross-listed with 1.384. Offered during fall semester. 4.384

4.385 Special Studies in Occupational Health 0.1 s.h.
Experiential course in various aspects of public health, epidemiology, environmental health, or occupational health. Cross-listed with 1.385. Offered during fall semester. 4.385

Psychiatry

Medical: Robert G. Blumberg


Psychiatric resident: Arthur Carrier, John Chopin, John Knoll, Howard Nebrown

Adjunct psychologist: Paul Perry

Associate professor: Donald Bock, Bruce Cook, Richard A. Cooper, Roger Foster, Samuel Kupperman, Michael Miller, Bruce Fischl, Kitty Wizniz, William York.

Adjunct associate professor: Bruce Alexander

Clinical associate professor: Neil Brown

Assistant professor: Les Bronson, William Brown, Seth Dener, Michael Foss, William Hwang, Jeffrey Hunt, Andrew Kim, Joseph Lin, Mark Marks, Victor Stewer

Assistant associate professor: James Maroon

Clinical assistant professor: Richard Brand, James Bregt, Constance Dougan, Fred Druker, Paul Pennington, James Pollen, Marjorie Shul, Andrew Shes, Irwin Wasserman, Ann Weisberg

Associate: Catherine Arum

Clinical instructor: Robert Clark, Detra Sisti, Claudia Thomas

The Department of Psychiatry teaches medical students and residents in psychology for academic and clinical care in psychiatry. It offers no degree programs.

It instructs medical students principally during their third year, in the course of a six-week clerkship.

The department maintains a four-year training program approved by the Board of Review Committee of the American Medical Association. Training experience are available at The University of Iowa Hospitals and Clinics and at the Veterans Affairs Medical Center, and in the Mental Health Center 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 its research programs in genetic and biological psychiatry, neuropsychology, and psychopharmacology, and in the psychosocial aspects of behavior.

Many research opportunities in psychiatry are available to students in the following areas: neuropharmacology and psychopharmacology; cognitive processes; learning and memory; biological rhythms; and other. Additional opportunities are available in the following areas: research in genetics and behavior.

Courses

72.100 Psychology for Physician Assistant Students (4 s.h., 2.5)

72.104 Psychology for Physician Assistant Students (4 s.h., 2.5)

72.280 Research in Psychiatry (4 s.h., 2.5)

72.294 Psychiatric Consultation (4 s.h., 2.5)

Courses Open Only to Medical Students

7.0.0 Clinical Psychiatry (4 s.h., 2.5)

7.0.1 Medical Psychiatry 1 (4 s.h., 2.5)

7.0.2 Medical Psychiatry 2 (4 s.h., 2.5)

7.0.3 Medical Psychiatry 3 (4 s.h., 2.5)

7.0.4 Medical Psychiatry 4 (4 s.h., 2.5)

7.10.0 Hospital Psychiatry, University of Iowa Hospitals and Clinics (4 s.h., 2.5)

7.10.1 Child Psychiatry, Psychiatric Hospital, Children's Service (4 s.h., 2.5)

7.10.2 Emergency Room Psychiatry, Behavioral (4 s.h., 2.5)

7.10.3 Correctional Psychiatry, Iowa Secure Facility, Oakdale (4 s.h., 2.5)

7.10.4 Research Psychiatry (4 s.h., 2.5)

RADIATION BIOLOGY

Professor of Radiation Biology and Department of Radiation Biology and Environmental Health

Radiation experiences in the late 1940s and 1950s, the dawn of the era of atomic bomb, the Chernobyl explosion, and the explosion of the nuclear weapons, have raised important issues about the effects of radiation and the need for effective radiation protection and health care. The study of radiation biology can provide a better understanding of the mechanisms of radiation damage and the development of effective strategies to mitigate the risks associated with radiation exposure.

Undergraduate Study

Two courses, 77.103 Introduction to Radiation Biology and 77.106 Environmental and Radiological Health Physics, are open to undergraduate students in liberal arts or professional college. 77.103 is especially appropriate for students who want an overview of fundamental biological effects and its use in our society. These courses also are of interest to students who plan to enter medicine, nuclear engineering, environmental health, or similar programs.

Graduate Programs

The Ph.D. program in radiation biology emphasizes the training of students interested in research and training in the fundamental principles of radiation biology. The Ph.D. program in radiation biology provides a foundation in the scientific principles of radiation biology and prepares students for a career in research, teaching, or industry. The Ph.D. program in radiation biology is a joint program between the Departments of Biology and Environmental Health, and the Department of Radiation Biology. The program is designed to provide students with a broad background in the principles of radiation biology and prepares students for a career in research, teaching, or industry.
The Department of Urology at The University of Iowa College of Medicine offers courses in all three 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 transplantation and cancer.

The Department of Urology participates actively in 50111 Introduction to Clinical Medicine, which involves the entire second semester of second-year medicine. The department offers illustrative lectures and demonstrations concerning diagnosis and treatment of diseases involving the genitourinary tract in males and the urinary tract in females and children.

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 urologists and family practitioners. These activities are conducted by the senior staff, whose interests include pediatric urology, reproductive physiology, urologic oncology, interventional urology, 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 urology, cellular immunology, and renal and urinary reservoir dialysis.

**Courses**

79-154 Clinical Urology 2 sh.
Wean to urologic unit, diet, responsibility for patient care, evaluation of results.

79-158 Advanced Clerkship in Urology 4 sh.
Exposure in inpatient and outpatient practice.

79-159 Advanced Clerkship in Pediatric Urology 4 sh.
Exposure to evaluation and care of infants, children, and adolescents.

79-160 Indirect Study and Research 1 sh.
Preparation of clinical projects; may include research presentations, collaboration on a publication.

79-161 Urological Oncology 1 sh.
Introductory to diagnosis, management of genitourinary malignancies, non-surgical urological procedures, role in collaboration on a publication.

79-162 Male Sterilization and Reversal 1 sh.
Current status of male sterilization, laboratory methods of evaluation, and clinical aspects of male sterilization and reversal.

79-163 Endourology 4 sh.
Clinical aspects of percutaneous nephrostomy, urologic endoscopy, transurethral procedures.

79-164 Urology Elective for Physician Assistant Students 1 sh.

79-165 Special Study Off Campus 1 sh.
The College of Nursing is an integral part of The University of Iowa Health Care, sharing in and contributing to teaching, research, and patient care resources that have earned national 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 or can be found on the campus. Faculty and students participate fully in University life and contribute to the social and cultural life of the campus, 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 Health and is a part of the Iowa quality assurance system. The baccalaureate examination required for practice as a registered nurse.

Undergraduate Program

The Baccalaureate Science in Nursing (B.S.N.) at The University of Iowa is designed to provide preparation for careers in the health care field 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 courses 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 diverse campus community. In addition, no less than two other pursuits, a college or university background makes people well to be prepared for a career but to be able to achieve a life of thoughts and actions informed by knowledge, introspection, and contemplation.

The program prepares professional nurses to be in health care providers who are able to engage in a broad range of health promotion and teaching activities used to coordinate care in any sector of the health care system.

The nursing major provides a basic for nursing roles in wellness and health promotion, in acute care, and in long-term care for chronic illness. The profession nurse provides care to individuals, families, groups, and communities along the continuum of health, illness, and disability.

In addition to providing care, the nurse serves as a coordinator of health care by: facilitating the delivery of comprehensive, efficient, and appropriate services to individuals, families, groups, and communities along the continuum of health, illness, and disability.

The 128-semester hour core of study consists of 74 academic hours of General Education Requirement core courses and supervised nursing courses, and 53 semester hours of course work in the nursing major. Students can expect to complete the program in four or four and one-half academic years. An R-N-JHN progression option is available for diploma and ADN registered nurses who wish to complete the R-N. For these students, a one-year plan of study is available for the completion of required nursing courses upon satisfaction of all required prerequisites and general education courses and admission to the College of Nursing. At the time of admission, all R-N-JHS students declare one of the four options available within the Iowa Articulation Plan for Nursing Education: R-N. to baccalaureate.

Nursing courses are based on the concepts of health, deviations from health, and nursing intervention are presented at the graduate level of preparation from the perspective of the NURSING. Students must complete 18 semester hours of acceptable courses in which auditing and readings are awarded a certificate of completion by the University registrar. Nursing students also have the option of completing a minor in aging studies by taking 15 semester hours outside of the major in courses approved by the program. For further information, see "Aging Studies Program" in the College of Liberal Arts section of the Catalog.

Honors

The University of Iowa College of Nursing Baccalaureate Honor Program provides opportunities for excellence and independence 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 for the entire major grade point average. The honors program recognizes academic achievement above and beyond the major academic requirements based on individual interests, needs, and goals. It provides an atmosphere for self-initiative and intellectual and personal development, and challenges students to grow and grow. Students who fulfill the requirements of the program graduate with honors in nursing.

Pregraduation Assessment Test

All students are encouraged to take a pregraduation assessment test during the final semester of their senior year. The test is designed to assess nursing students' current state of knowledge and ability in various clinical situations, identify students' specific strengths and weaknesses, provide a sense of direction for further study and a means for setting priorities; and help students choose effective and efficient plans for further study and review before they take the National Council on Licensure Examination for Registered Nurses.

The examination score is not computed in the course grade. Students receive a detailed printout of the results of their examination and are given recommendations for self-directed study.

Aging Studies

Students in the College of Nursing may participate in the Aging Studies Program, which is designed to provide undergraduate students in a multidisciplinary pathway to gerontology. Students plan their course of study with their academic advisor in close cooperation with the Aging Studies Program coordinator. Nursing students who successfully complete 18 semester hours of acceptable courses in which auditing and readings are awarded a certificate of completion by the University registrar. Nursing students also have the option of completing a minor in aging studies by taking 15 semester hours outside of the major in courses approved by the program. For further information, see "Aging Studies Program" in the College of Liberal Arts section of the Catalog.

Cooperative Education

Summarized 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 opportunities 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 Internship Program, or the Office of Cooperative Education, for specific information about the program.
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 training process and health assessment: community health care clinical management, leadership, management, and research opportunities; nursing professionalism; and compute 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 in a receiving institution in the Iowa Statewide Anticipation Plan for Nursing Education: R.N. to baccalaureate. The time of admission to the College of Nursing, students declare one of the five 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 course examinations. Once prerequisites are met, students may complete the R.N.-B.S.N. nursing major sequence in one calendar year or three years in a sequence that include three clinical and two 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

Advisors from the Undergraduate Academic Advising Center advise nursing students. After admission to the College of Nursing, each student is assigned a College of Nursing faculty adviser.

Student Organizations

College of Nursing undergraduate students have their own organization, the Association of Nursing Students (ANS) and also are eligible for membership in the state and national associations of nursing students. ANS provides opportunities for professional growth and development in nursing. Its representatives are members of the University of Iowa Student Association (USA), and there is an ANS representative on the Academic Council of the College of Nursing.

College of Nursing graduate students also have an organization, the Association of Graduate Nursing Students (AGNS). AGNS provides opportunities for professional growth, sharing of research, and representation on various college and University committees.

Expenses

Students pay the general University fees throughout the program. They also must purchase uniforms, white shoes, a stethoscope, a watch with a full sweep second hand, and supplies and materials for required nursing courses. Students arrange for their own health screening requirements, professional liability insurance, and transportation since they are enrolled in clinical nursing courses.

Professional Liability Insurance

All students in the College of Nursing are required to carry professional liability insurance throughout the duration of their program. Agencies in which students are involved in clinical practice 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, one year each of biology, chemistry, and physics, plus other college preparatory courses selected with the help of the school counselor.

College Background

ADMISSION REQUIREMENTS

To apply for admission to the undergraduate program in nursing, each student must be a high school graduate. Full admission to the University of Iowa and present:

- a minimum of 26 semester hours completed at an accredited college;
- successful completion of seven of the fourteen prerequirement in the first clinical nursing course, including successful completion of three of the following science courses: inorganic chemistry, organic chemistry, microbiology, animal biology, microbiology, human anatomy, human physiology, and a minimum grade-point average of 2.20 on a 4.00 scale.

Predental Background

Students must satisfy the following requirements, in addition to the biological science courses required for admission, at the college, before beginning clinical nursing course work.

- Students—A semester hour (may be satisfied by nursing 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 mathematics, a score greater than or equal to 20 on the mathematics battery of the ACT, or completion of a college course in mathematics comparable to or more advanced than intermediate algebra (MATH 02).
- Physics—one full year of high school physics or equivalent; if physics is completed at the college level, it may be included in the 26 semester hours required for admission.

The following course work:

- Inorganic chemistry 3 s.h.
- Organic biology 3 s.h.
- Animal biology 4 s.h.
- MATH 21
- Human anatomy 4 s.h.
- Human physiology 4 s.h.
- Nutrition 3 s.h.
- Psychology 3 s.h.
- Sociology 3 s.h.
- Anthropology 3 s.h.
- Human development and behavior 3 s.h.

STANDARDS

To be considered for admission to the College of Nursing, the applicant must have satisfactorily completed all prerequisites.

American College Tests

All entering freshmen and undergraduate transfer students who present lower than 26 semester hours when they apply for admission to the University of Iowa must complete the American College Test (ACT) or the Scholastic Aptitude Test (SAT). For information on the ACT, contact the American College Testing Program, Box 451, Iowa City, Iowa 52243.

Selection Factors

Preference of minimum admission requirements is intended for competitive admission to the College of Nursing. Applications are processed as they are received. From applicants who meet minimum requirements, the college's admissions committee recommends to the dean those applicants who appear to be the most qualified. The committee may require personal interview, a physical examination and specific health screening requirements must be on file prior to the opening of classes for the first clinical nursing course.

Application Deadlines

Applications are considered as they are received. They must be submitted by May 1 for the fall semester and December 1 for the spring semester.

Graduate Programs

Master of Arts

The University of Iowa M.A. program in nursing is accredited by the National League for Nursing
Advanced Nursing Core

The core consists of 17 semester hours of course work with prerequisites; 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, gerontology, family nursing, or oncological nursing. Students must complete a pediatric nurse practitioner option in the child health specialization area or a nurse manager option in the nursing administration role preparation area. An M.B.A./M.A. in nursing is available.

Two to three supporting courses are required to either the nursing specialization or role preparation areas are taken in the social, behavioral, or biological sciences or business administration, law, or hospital and health administration.

The following courses are required for the nursing manager option:

- 96:200 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
- 96:204 Leadership in Nursing: Theory and Application 3 s.h.
- 96:206 Professional Seminar: Issues in Nursing 2 s.h.
- 96:210/211 Methods of Research in Nursing 6 s.h.
- 96:212 Health Care Economics and Public Policy 3 s.h.
- 96:290 Nursing Administration: Process, Roles, and Strategies 3 s.h.
- 96:292 Nursing Administration Seminar 2 s.h.
- 96:293 Computer Applications for Advanced Administrative Roles 3 s.h.
- 76:200 Ethics in business or hospital and health administration (2 credits is optional) 9-12 s.h.

Thesis 5 s.h.

or

Master's Project 2 s.h.

Degree Requirements

The curriculum ordinarily requires four full terms of full-time study for completion. Part-time and evening study options are available. The M.B.A./M.A. in nursing program requires a minimum of 30 semester hours of full-time study. Students must maintain a 3.50 minimum grade-point average and must successfully complete a master's thesis or master's project. The master's curriculum consists of five components.

Plan of Study

The plan of study described below is designed for full-time students. Those who want to study on a part-time basis progress through courses in approximately the same way, but over a longer period of time. Taking one or two courses per semester, for example, extends the time of study to three to five years. Any course work, taken ten years or more prior to the final examination must be updated, according to University policy.

FIRST YEAR

Fall Semester

- 96:200 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
- 96:204 Leadership in Nursing: Theory and Application 3 s.h.
- 96:290 Supporting course 3 s.h.

Spring Semester

- 96:210 Methods of Research in Nursing 3 s.h.
- 96:212 Health Care Economics and Public Policy 3 s.h.
- 96:222 Nursing of Children: Health Promotion 4 s.h.
- 96:226 Nursing of Adults: Health Promotion 4 s.h.
- 96:231 Gerontological Nursing II 4 s.h.
- 96:234 Community/Family Health Nursing: Health Promotion 4 s.h.

Total: 13 s.h.

SECOND YEAR

Fall Semester

- 96:211 Methods of Research in Nursing II 3 s.h.
- 96:299 Thesis 3 s.h.

One of these:

- 96:223 Nursing of Children: Responses to Illness 4 s.h.
- 96:226 Nursing of Adults: Responses to Illness 4 s.h.
- 96:231 Gerontological Nursing I 4 s.h.
- 96:235 Community/Family Nursing: Client Responses to Illness 4 s.h.

- 96:246 Curriculum Development in Nursing Education 3 s.h.
- 96:290 Nursing Administration: Process, Roles, and Strategies 3 s.h.
- 96:292 Advanced Clinical Practice I 3 s.h.

Total: 12 s.h.

Spring Semester

- 96:206 Professional Seminar: Issues In Nursing 2 s.h.
- 96:290 Supporting course 3 s.h.

One of these:

- 96:247 Nursing Education: Process, Roles, and Strategies 3 s.h.
- 96:291 Nursing Administration: Process, Roles, and Strategies II 3 s.h.
Admission

Students should seek admission to the master's program in nursing through direct application to the University of Iowa College of Nursing. Minimum requirements for admission to the College of Nursing include a completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) General Test scores; a minimum score of 230 on the Test of English as a Foreign Language (TOEFL), when appropriate; and a 2.50 minimum grade-point average for regular admission or 2.30 for conditional admission. In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that the applicant:

- possess a bachelor's degree with a major in nursing from a program accredited by the National League for Nursing; applicants are eligible 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;
- fulfill the legal requirements for the practice of nursing in Iowa;
- have an undergraduate grade-point average of 3.75 or higher, or a demonstrated ability to do graduate work with high grades; or have an undergraduate grade-point average of 2.50 or higher for conditional admission; have current written recommendations from three persons familiar with the applicant's competence in the practice of nursing and potential for leadership and scholarship; and have successfully completed a graduate-level (or equivalent) statistics course prior to admission.

Applications for admission to the master's degree program are reviewed on a continuing basis. For review, the applicant's file must be complete, with all relevant materials submitted. Deadline for summer and fall admission is May 1. The spring semester admission deadline is December 1. Initial course enrollment may begin any term.

All regulations of the Graduate College pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. Transfer credits applicable to the master's degree program are limited and must be approved by the dean for the graduate program in nursing and by the student's advisor.

Doctor of Philosophy

The Ph.D. in nursing program prepares students 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 three focal areas from which students choose: nursing in aging and nursing administration. Graduates of the program prepare 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 use the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>64:501</td>
<td>Social Evolution in American Nursing</td>
<td>3.0</td>
</tr>
<tr>
<td>64:540</td>
<td>Nursing Theory</td>
<td>3.0</td>
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<tr>
<td>64:550</td>
<td>Nursing and Health Information Systems</td>
<td>3.0</td>
</tr>
<tr>
<td>64:560</td>
<td>Economics of Health Care and Nursing</td>
<td>3.0</td>
</tr>
<tr>
<td>63:350</td>
<td>Nursing in Aging and Nursing Administration</td>
<td>3.0</td>
</tr>
</tbody>
</table>

In addition, candidates must take the following courses for their focus area (total of 12 semester hours):

Aging Focus

- 64:401 Nursing Research of Biological Phenomena and Interventions for the Elderly | 3.0 |
- 64:420 Gerontic Mental Health Research | 3.0 |
- 64:420 Nursing Research in Gerontologic Nursing: Phenomena and Interventions for the Elderly | 3.0 |
- 64:440 Nursing Utilization Residency in Care of the Elderly | 3.0 |

Nursing Administration Focus

- 64:450 Research Seminar in Nursing Administration II: Organizational Concepts | 3.0 |
- 64:470 Research Seminar in Nursing Administration I: Health Care Systems Concepts | 3.0 |
- 64:460 Innovations in Nursing Management | 3.0 |
- 64:480 Residency in Nursing Service Administration | 3.0 |

Comprehensive Exam

All students must complete a written comprehensive examination. Candidates earn 12 semester hours for work on their dissertation by completing 64:497 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 fulfill the following requirements:

- completion of an NNL-accredited basic nursing program;
- completion of a master's degree program;
- current B.N. license to practice nursing;
- GRE General Test, preferably within the past five years;
- a minimum score of 530 on the Test of English as a Foreign Language (TOEFL), or a minimum score of 80 on the TOEFL Internet-based Test (iBT);
- a current curriculum vitae.

One year of nursing experience is preferred.

Professional Improvement

Some registered nurses may wish to take course work at the University to fulfill the objective of professional or personal improvement. Such individuals may request admission in the professional improvement (U.I) category. This admission status allows students to take some graduate courses in the University without committing to a definite 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 the first semester registration. Deadlines are July 15 for admission in the fall semester, December 1 for admission in the spring semester, and May 1 for admission in the summer semester.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master's or doctoral candidate, students are required to follow the application procedures described in the previous section if they wish to seek admission as masters or doctoral degree candidates. Only 3 semester hours of the required nursing core may be used toward the M.A. requirements. Students may not enroll in doctoral courses.

Continuing Education

Through the 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 are also available. Continuing education units (CEUs) are awarded for each program on the basis of one exit per 10 clock hours of instruction. The Office of Continuing Nursing Education is approved by
Courses

Primarily for Undergraduates

96.000 Cooperative Clinical Internship 0.5 h. Students work with registered nurses in hospitals, health centers, and public health agencies. Prerequisite: permission of the instructor.

90.200 Social Development and Behavior 3.1 h. Developmental stages of the human organism from conception through senescence: psychological, intellectual, emotional, social, and physical. Prerequisites: 31.01 or 31.02.

90.31 Adult Development and Aging 3.0 h. Psychosocial, emotional, premarital development in the elderly; evaluation of the aged or geriatric patient. Prerequisites: current or permission of the instructor.

90.90 Professional Nursing: An Overview 3.0 h. Practice of nursing and its values, norms, and the differentiated roles of nurses. Prerequisites: current or permission of the instructor.

90.95 Preliminary 4.0 h. Concepts of professional, psychological, and sociological dimensions of home; evaluation of the adequacy of the social environment; and the factors to consider in current health care. Prerequisites: current or permission of the instructor.

90.121 Foundations of Nursing Practice 4.7 h. Comprises an effective nurse-client relationship, intervention, behavior management, pain relief, and concepts of self in nursing practice as a science and an art. Prerequisites: 90.05 or 90.06 and completion of 90.02 or permission of instructor. Credit will not be given for both 90.200 and 90.121.

90.122 Foundations in Nursing Practice Clinical and Theoretical Nursing Skills 1 Scientific principles, application of basic clinical and psychological nursing skills. Prerequisites: 90.121 and 90.122 with a grade of C or higher. Corequisite: 90.232.

90.123 Nursing Process in Acute Illness 7.0 h. Psychological and sociopsychological concepts and communication of the illness experience; patient response to illness; the professional role in the medical setting. Prerequisites: 90.04, 90.121, and 90.122.

90.124 Nursing Process in Chronic Illness 7.0 h. Psychopathology and psychological concepts and communication with the chronically ill patient; the role of the nurse in the medical setting. Prerequisites: 90.121, 90.122, and 90.123.

90.161 Integrated Approach to Professional Nursing Practice 9.0 h. Clinical experience from clinical courses 90.121, 90.122, and 90.123. Corequisite: 90.124. Credit will not be given for both 90.161 and 90.190.

90.163 Leadership, Management, and Research 1.0 h. Prerequisite: 90.121, or 4.0, 4.7, or 7.0 h. semester of professional preparation. Credit will not be given for both 90.161 and 90.163.

90.146 Ethical, Philosophical, and Social Foundations of Nursing 3.0 h. Dignity of the professional nurse, ethical and legal fiction in current nursing health care systems, trends in nursing. Prerequisites: 90.121 or completion of 90.123. Corequisite: 90.124.

90.148 Advanced Theory and Practice in Nursing 9.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisite: 90.123 and 90.124. Credit will not be given for both 90.148 and 90.161.

90.222 Nursing of Children: Health Promotion 4.0 h. Students are familiar with child health, nursing diagnosis, illness prevention, and development and will be able to develop a comprehensive health care plan. Prerequisites: 90.04, 90.121, and 90.122.

90.223 Nursing of Children: Response to Illness 4.0 h. Development of knowledge, skills in assessing, diagnosing, planning, implementing, and evaluating response to illness or injury. Prerequisites: 90.04, 90.121, and 90.122. Credit will not be given for both 90.223 and 90.224.

90.244 Applications of Primary Health Care 4.0 h. Development of knowledge, skills in assessing, diagnosing, planning, implementing, and evaluating response to illness or injury. Prerequisites: 90.04, 90.121, and 90.122. Credit will not be given for both 90.223 and 90.244.

90.227 Nursing of Adult: Response to Illness 4.0 h. Development of knowledge, skills in assessing, diagnosing, planning, implementing, and evaluating response to illness or injury. Prerequisites: 90.04, 90.121, and 90.122.

90.230 Gerontological Nursing I 3.0 h. Translation of knowledge, skills in assessing, diagnosing, planning, implementing, and evaluating response to illness or injury. Prerequisites: 90.04, 90.121, and 90.122.

90.231 Gerontological Nursing II 3.0 h. Translation of knowledge, skills in assessing, diagnosing, planning, implementing, and evaluating response to illness or injury. Prerequisites: 90.04, 90.121, and 90.122.

90.232 Community/Public Health Nursing: Health Promotion 4.0 h. Students are familiar with child health, nursing diagnosis, illness prevention, and development and will be able to develop a comprehensive health care plan. Prerequisites: 90.04, 90.121, and 90.122.

90.233 Community/Public Health Nursing: Client Response to Stress 4.0 h. Students are familiar with child health, nursing diagnosis, illness prevention, and development and will be able to develop a comprehensive health care plan. Prerequisites: 90.04, 90.121, and 90.122.

90.254 Basic Nursing Concepts in Children’s and Adolescent Health 4.0 h. Development of knowledge, skills in assessing, diagnosing, planning, implementing, and evaluating response to illness or injury. Prerequisites: 90.04, 90.121, and 90.122.

90.257 Nursing Education: Process, Roles, and Analysis 3.0 h. Role of education through, application in the field of nursing: a comparison of nursing education programs. Prerequisites: 90.04, 90.121, 90.122, and corequisite: 90.124.


90.267 Administration: Process, Roles, and Structure 2.3 h. Principles, responsibilities, and accountability of health administration: application to health care organizations. Prerequisites: 90.04, 90.121, 90.122.


90.262 Advanced Clinical Practice I 3.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisites: 90.121, 90.122, and 90.123.

90.259 Advanced Clinical Practice II 3.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisites: 90.121, 90.122, and 90.123.

90.260 Advanced Clinical Practice III 3.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisites: 90.121, 90.122, and 90.123.

90.261 Advanced Clinical Practice IV 3.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisites: 90.121, 90.122, and 90.123.

90.262 Advanced Clinical Practice V 3.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisites: 90.121, 90.122, and 90.123.

90.263 Advanced Clinical Practice VI 3.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisites: 90.121, 90.122, and 90.123.

90.264 Advanced Clinical Practice VII 3.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisites: 90.121, 90.122, and 90.123.

90.265 Advanced Clinical Practice VIII 3.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisites: 90.121, 90.122, and 90.123.

90.266 Advanced Clinical Practice IX 3.0 h. Advanced study of selected areas in nursing as they relate to current health care systems. Prerequisites: 90.121, 90.122, and 90.123.
Undergraduate

Program

The College of Pharmacy, Arts, Business, Education, and Science offers a Bachelor of Science degree in Pharmacy. The program is accredited by the American Council on Pharmaceutical Education (ACPE). The curriculum is designed to provide a broad education in the basic sciences, including biology, chemistry, physics, and mathematics, as well as courses in pharmaceutical sciences and pharmacy practice.

In addition to the academic requirements, students must complete a series of professional experiences, including a four-year rotation in pharmacy practice and a two-year clinical experience. These experiences are designed to prepare students for a career in pharmacy.

Admission

The College of Pharmacy requires applicants to have completed a minimum of 60 semester hours of college coursework, including biology, chemistry, physics, and mathematics. Applicants must also have a minimum GPA of 3.0 on a 4.0 scale.

The College of Pharmacy also requires applicants to take the Pharmacy College Admission Test (PCAT) and to complete a personal statement. Applicants are encouraged to apply early, as the College of Pharmacy receives a large number of applications each year.

Honors

The College of Pharmacy offers an Honors program for students who demonstrate academic excellence. Honors students are eligible for a variety of scholarships and opportunities to participate in research projects. In addition, Honors students are required to complete a thesis project.

Professional Curriculum

Students must complete a minimum of 120 semester hours of coursework, including 90 semester hours of coursework in the professional program. The professional program includes courses in pharmaceutical sciences, pharmacy practice, and research.

The College of Pharmacy offers a variety of specialty programs, including a program in pharmacy administration and a program in pharmaceutical sciences. These programs are designed to prepare students for careers in specific areas of pharmacy.

In addition to the professional coursework, students must complete a series of professional experiences, including a four-year rotation in pharmacy practice and a two-year clinical experience. These experiences are designed to prepare students for a career in pharmacy.

The College of Pharmacy also requires students to complete a series of professional experiences, including a four-year rotation in pharmacy practice and a two-year clinical experience. These experiences are designed to prepare students for a career in pharmacy.

Northwestern University is a member of the American Association of Colleges of Pharmacy (AACP). The College of Pharmacy is accredited by the Commission on the Accreditation of Pharmacy Educations (ACPE).
Pharmacy

The Pharm.D. program is a two-year professional degree program that combines didactic course work and clinical experience. 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 expanded role in measuring, evaluating, and optimizing the drug therapy in hospitalized and ambulatory patients. The curriculum is designed to provide a broad-based background in pharmaceutical sciences, chemistry, biology, and other sciences with an emphasis on the clinical use of drugs. The program is designed to prepare pharmacists for careers in hospital pharmacy, community pharmacy, industry, government, and other areas of pharmacy practice.

The University of Iowa College of Pharmacy offers a wide variety of opportunities for students to gain practical experience in the pharmaceutical sciences. Students are encouraged to participate in research projects and to attend professional meetings. The College also offers opportunities for students to engage in extracurricular activities, such as student organizations, service clubs, and professional societies. In addition, the College has a comprehensive student support system that provides academic and personal guidance to students.

The College of Pharmacy also offers a master's degree program in pharmaceutical sciences. The program is designed to provide advanced training in the pharmaceutical sciences for students interested in clinical pharmacy, research, or other specialized areas of pharmacy practice. The program requires the completion of a thesis or research project, and students are encouraged to work closely with faculty members to develop their research and clinical skills.

The College of Pharmacy is located on the University of Iowa campus in the center of the city, providing students with easy access to a wide range of cultural, entertainment, and recreational activities. The University of Iowa also offers a variety of extracurricular activities, such as sports teams, clubs, and organizations.

The College of Pharmacy is committed to providing a diverse and inclusive educational environment for all students. The College encourages students from all backgrounds to apply to the Pharm.D. program and to participate in all aspects of the program. The College also offers a range of support services to help students succeed.

For more information, please visit the College of Pharmacy website or contact the Office of Student Affairs at (319) 335-2043.
46:117 Clinical Nuclear Pharmacy Certificate
Advanced clinical experience in the use of radiopharmaceuticals, radiopharmaceutical drug interactions, pharmacological interpretation in nuclear medicine data, radiopharmaceutical drug information.

46:118 Dental College Certificate
Advanced clinical experience involving general and local anesthesia, conscious sedation and pain control, restorative, endodontic, periodontal, and prosthodontic procedures.

46:119 Phlebotom-0 Bloods Certificate
Advanced clinical experience in a healthcare setting.
Continuing Education

Dean: Ernest J. Vaughan

The Division of Continuing Education was established by special legislation of the General Assembly of Iowa in 1969 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 ideal, and the spirit of several departments and colleges of the University and by bringing the University directly into direct contact with the citizens."

The division's organization and services include the following:

Audiovisual Center

Director: William Oglesby

The Audiovisual Center provides consultation, planning, design, production, and marketing of instructional audiovisual materials. Its media production units are the University's major manufacturers of a broad range of graphic, photographic, and audio materials.

- Graphic Art Unit: graphs, charts, maps, titles, layouts, posters, handouts, models, exhibits, and overhead presentations.
- Photographic Service: black-and-white and color photographs, negatives, two-inch slides, negatives, panoramas, macrophotographs, many types of specialized photography, and still photographs:
- Laboratory services: three darkrooms.
- Audio Unit: original audio tape recording studio and locations. Tape duplication (open reel and cassette), sound editing, equalizing, mixing, and transfer.
- Multivision Unit: design and production of slide and multipurpose slide programs. Use of twelve projectors, manual and programmed control, open reel, and slide-to-slide projection.

The Audiovisual Center also markets and distributes audiovisual products originated at the University. Negotiation with and sometimes sponsorship of University departments and the center charge costs University departments for materials only. For requests funded by grants, charges are made for materials used.

Media Services

Director: James Neff

The University Iowa Library provides a no charge major collection of 16-mm instructional films and videotapes for on campus instruction and curricular-related activities. There is a rental fee for off-campus use. Smaller collections of audiotapes, filmstrips, and slides plus facilities for students or faculty also are available. Catalog of these collections are available on request. The library also maintains a reference collection of materials from other sources.

Equipment Services provides the following: for instructional use or no charge: projectors for films, slides, filmstrips, and video; opaque and overhead projectors; portable projection screens; audiocassette recorders/players; videotape recorders/players; portable public address systems; and display devices (projectors, screen, boards). Repair service is available for audiovisual equipment.

Center for Conferences and Institutes

Acting Director: J. David Leppin

The center for Conferences and Institutes is the University's principal agency for developing, coordinating, and conducting noncredit continuing education programs for nontraditional students 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 wish new knowledge related to their work or special interests.

Each year more than 30,000 adults participate in the center's various programs, including seminars with college and university professors, workshops, and community service projects.

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 Correspondence Study.

Off-Campus Classes

The Center for Credit Programs offers University courses off campus. Classes are scheduled when students request off-campus classes, either in private homes, in public school offices, or in any location where a qualified instructor is available.

Enrollment in each course must be sufficient to meet the cost of offering the course. Information is available from the Center for Credit Programs.

Saturday and Evening Classes

The Saturday and Evening Class Program offers University courses at times convenient for nontraditional students. All classes meet on The University of Iowa campus. Enrollment in each course must be sufficient to meet the cost of offering the course. The Saturday and Evening Class Program bulletin 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 students whose job, family, geographic location, or other personal circumstances prevent them from attending college as full-time students. The program has no residence requirement.

Credit applicable toward the degree may be earned through Saturday and evening courses, correspondence and independent study courses, off-campus courses at sites throughout Iowa, telecourse courses, and distance 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: Robert Tsi-lin

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 L. Shields

The institute is the primary research and continuing education link between the University and city, county, and state governments in Iowa. Its services are available to state and local government agencies, citizen groups involved 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 goals to helping management systems, and quality circles to serving on statewide government committees that deal with major concerns of state and local governments.

Video Center

Director: David C. Lund

The University Video Center provides high-quality video services and facilities, including those necessary to sustain and promote research activities. It also coordinates video equipment, purchase, and inventory and promotes efficient University support of campus video. Toward this end, the center has the personnel and facility resources to help units purchase equipment and supplies and carry out production and program-related activities. The center also provides video system design and maintains guidelines for equipment standardization.
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 River and Sight Saving School, and the Iowa School for the Blind. The Board consists of nine members, as follows:

President: Martin A. Penceoma, West Des Moines
Martin S. Beneski, Sioux City
John R. Fitzgerald, West Des Moines
Bretta Lee, Emmerton, Waterloo
John M. Craig, Des Moines
Elizabeth D. Hatch, Cedar Rapids
Barbara T. Tyler, Atlantic
Vicki Weimerfield, Iowa City
Mary C. Williams, Des Moines
Executive secretary: B. Wayne Bichy

Central Administration
President: W. Eugene R. Brawley III
Vice president for academic affairs and dean of faculties: Peter E. Nathan
Acting vice president for research: Derek Willard
Interim vice president for finance and university services: Douglas True
Vice president for university relations: Ann M. Rhodes

Academic Affairs
Vice president and dean of faculties: Peter E. Nathan
Dean of students: Phillip E. Jones
College of Business Administration: Dean: George Day
College of Dentistry: Dean: James M. McLean
College of Education: Dean: Steven R. Vyas
College of Engineering: Dean:
Graduate College: Dean: Leslie M. Sloss
College of Law: Dean: N. William Heins
College of Liberal Arts: Dean: James A. Gilman
College of Medicine: Dean: C. Richard Polson
College of Pharmacy: Dean: Gilbert R. Decker
Division of Continuing Education: Dean: Dmitri J. Veiga

Iowa Lakeside Laboratory
Acting director: Robert L. Craven

Library
University Librarian: Sheila Croft

Museum of Art
Director: Stephen S. Pruekoff

Office of International Education and Services
Director: Stephen M. Anon

Summer Session
Director: Lenda Davis

Research
Acting vice president: Derek Willard

Center for Advanced Studies
Director: Jay Sallman

Center for Health Services Research
Acting director: Robert L. Lodise

Division of Sponsored Programs
Director: Brian Harvey

Health Protection Office
Acting director: James C. Walker

Occupational Health Service
Director: Lawrence Fontana

Office of Information Technology
Interim director: W. Lee Smythe

State Archaeologist: William Green

Technology Innovation Center
Director: W. Bruce Wheaton

University of Iowa Press
Director: Paul Zimmer

University Vegetarian: Paul S. Cooper

Wing Computing Center: Interim director: Linda Boyse

Student Academic Services
Admissions
Director: Michael Bunn

University Registrar
S. J. W. Draper

Graduate Academic Advising Center
Director: Julie Vachon

University Examination and Evaluation Services
Acting director: Joyce R. Moore

Student Administrative Services
Associate vice president: Phillip E. Jones

Campus Programs and Student Activities
Director: Iowa Memorial Union
Director: Joan Kendall

Office of Services for Persons with Disabilities
Coordinator: Donna Chandler

Residence Services
Director: Robert J. Irwin

Special Support Services
Director: Rosalyn B. Green

Student Financial Aid
Director: Mark Wanner

University Counseling Service
Director: Gerold L. Stone

Women's Resource and Action Center
Coordinator: Maria Melina

Finance and University Services
Interim vice president: Douglas True

Business manager: Michael F. Finney

Controller and secretary: Douglas M. Young

Treasurer: Douglas True

Physical Plant
Acting director: George Klein

Planning and Administrative Services
Director: Richard E. Gibson

Public Safety
Director: William F. Foderstrum

Recreational Services
Director: Henry E. Alexander

University Personnel Services
Director: Martin J. Litch

University Relations
Vice president: Ann M. Rhodes

Alumni Association
Director: Richard Reamer

Intercollegiate Athletics for Men
Director: Robert Bower

Intercollegiate Athletics for Women
Director: Christine Grant

Radio Stations WJIO KUSI
Acting director: John Monick

State Relations
Director: Ted Yeckle

University Relations
Director: James Fritz

University Health Services
Assistant to the president for statewide health services: John W. Collins

Psychiatric Hospital
Director: George Whaley

Regional Child Health Specialty Clinics
Director: Richard P. Melson
The following is extracted from the Board of Regents' approval of the Iowa Administrative Code on April 15, 1992.

**Admission Rules Common to the Three State Universities**

681 - 1.2(626) Admission of undergraduate students directly from high school

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $10 application fee, and have their secondary schools provide a transcript of their academic record, including credits and grades, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Aptitude Test (SAT), or the equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. Applicants may be required to submit additional information or data to support their applications.

1.1(1) Graduates of approved Iowa high schools who have the aptitude and 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 review of their academic and test records, and in 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 admitted under the same requirements as graduates of Iowa high schools. The options for conditional admission or suspension of admission may not necessarily be offered to these students.

1.1(3) Applicants who are graduates of non-Iowa high schools will be considered for admission in a manner similar to applicants from approved high schools, but additional requirements will be based on scores obtained on standardized examinations.

1.1(4) Applicants who are not high school graduates, but whose classes have graduated, may be considered for admission. That will be required to submit all academic data to the extent that it exists and accepted scores or 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 during the summer prior to high school graduation. In rare situations, exceptional students may be admitted as full-time students to a university before completing high school. Early admission to a university is provided to serve persons whose academic achievement and personal and intellectual maturity clearly suggest readiness for college level study. Each university will specify requirements and conditions for early admission.

681 - 1.2(626) Admission of undergraduate students by transfer from other colleges

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $10 application fee, and request that each college they have attended send an official transcript of record to the admissions office. High school academic records and standardized test results may also be required. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. 1.2(3) Transfer applicants with a maximum of 24 semester hours of graded credit from regionally accredited colleges or universities, who have achieved for all college 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 do not maintain the grade point required by each university for academic programs or who are under academic suspension from the last college attended may, after review of their academic and test records, and in 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(4) Admission of students with fewer than 24 semester hours of college credit will be based on high school academic and standardized test records and in addition, on review of the college record.

1.2(5) Transfer applicants under disciplinary suspension will not be considered for admission until information concerning the reasons for the suspension has been received from the college granting the suspension. Applicants granted conditional admission under these circumstances will be admitted on probation.

1.2(6) Transfer applicants from colleges and universities of another region shall not be considered for admission on an individual basis taking into account all available academic information.

681 - 1.2(626) Transfer credit policies

The recent changes in the Iowa Student Aid Commission approved in 1978 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COAPA). The current issue of Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and publication of the National Association of State Universities (NAAOU) 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 which in the institution granting the credit were not regarded as college level, may not be accepted, or may be accepted to a limited extent.

Transfer credit from a two-year college will not reduce the minimum number of credit hours required for a bachelor's degree if credit earned is drawn from more than one semester of hours accumulated by the student at institutions attended beyond the first half of the number of credits required for the degree.

1.3(2) Students from colleges and universities which have candidate status

Credit earned at colleges and universities which have candidate status for regional accreditation 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 levels in a four-year college which has received approval by a regional accrediting association for change to a four-year college may be accepted by a regionally accredited university.
1.2(2) Students from colleges and universities not recognized as educational institutions

When students are admitted from colleges and universities not regionally accredited, they may provide transcripts of their academic studies to satisfy regional accreditation 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 college in Iowa which do not have regional accreditation, the right committee on educational institutions, upon request from the institution, evaluates the extent of the educational program, faculty, enrollment records, library, and campuses.

In determining the acceptability of transfer credit from colleges in Iowa which are not regionally accredited, accepted programs indicated in the current issue of Transfer Credit Practices of Selected Educational Institutions will be used as a guide. Transcripts not listed to the publication, guidance is requested from the designated reporting institution of the appropriate state.

1.2(4) Students from foreign colleges and universities

Transfer credit from foreign educational institutions may be granted after a determination of the type of institution attended, and after an evaluation of the content, level, and comprehensiveness of the course and programs at the receiving university. Credit may be granted specifically if it is not frequently assigned to general areas of study. Extramural use is made of professional journals and references which are not applicable to their programs, and programs of individual countries.

Residence

481-1.4(263) Classification of residents and nonresidents for admission, tuition, and fee purposes

1.4(1) General

a. A person residing 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 designee designated by the registrar. The decision shall be based upon information furnished by the Registrar 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 resident. For example, it may be possible that an individual could qualify as a resident of Iowa for purposes such as voting, or holding an Iowa driver's license, and not the resident requirement established by the Board of Regents for admission, tuition, and fee purposes.

c. The registrar, or designee, is authorized to require written documents, affidavits, agreements, 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.

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 admitted 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 not be considered a resident provided the student has not established domicile in another state.

b. In deciding whether a person in the state of Iowa, the person's domicile will be considered. A person who comes to Iowa from another state and voluntarily gives up the education or postsecondary education for a full program or substantially a full program will be presumed to have come to Iowa primarily for educational reasons rather than to establish a domicile in Iowa.

c. A student who was a former resident of Iowa may continue to be considered a resident provided absence from the state was for a period of less than 12 months and provided domicile is reestablished. If the absence from the state is for a period exceeding 12 months, a student may be considered a resident if evidence can be presented showing that the student has long-term ties to Iowa and reestablishes an Iowa domicile.

d. A person or the dependent of a person whose domicile is permanently established in Iowa, who has been classified as a resident for admission, tuition, and fee purposes, may continue to be classified as a resident as long as domicile is maintained. An absence from Iowa, for purposes of military or business, will not require a new classification.

1.4(3) Facts

a. The following circumstances, although not necessarily conclusive, have provided evidence in support of a claim for resident classification:

1. Residence in Iowa for 12 consecutive months, and the person 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. Iowa Administrative Code 477
Supplemental Specific Rules For The University of Iowa

681 – 2.1(262) Formal application for admission

All applicants for admission to any college of the University of Iowa must submit a formal application for admission with the required official transcript 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 – 2.2(262) College of Business Administration

2.2(1) Application for admission

Applications for admission to the college of business administration must 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 each session.

2.2(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. Attached satisfactory scores on the university's required entrance 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.

Completion of the minimal requirements listed above, however, does not assure admission to the college of business administration. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

681 – 2.4(262) College of Dentistry

2.4(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of each 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 in liberal arts and dentistry that 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.

Completion 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 its 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 all official transcripts 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 six or 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 maintain a cumulative grade-point average of 2.5. Since the quality of one college work in preclinical 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 free 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 nonresidents of Iowa.

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 test sponsored by the Committee on Dental Education of the American Association of Dental Colleges. Tests are given on three occasions annually. The University of Iowa is a testing center.

To facilitate early selection, applicants for admission to the college of dentistry are urged to begin the application process no later than October to enable the admissions committee to begin their selection in December.

Accepted applicants are required to make the required deposit within two weeks after notification of acceptance. This deposit is not refundable but is applied toward tuition and fees. 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 dental examination report to the university student health service within 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 diphtheria.

2.4(2) Advanced standing

Applications for admission with advanced standing are accepted on an individual basis.

681 – 2.5(262) College of Engineering

Address all inquires regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.
Closing dates for receiving applications will be advertised well in advance of the opening date of any session.

2.51) 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 standing in the graduating class, and successfully completed all prerequisite courses. The university will be open to the same general board of regent that shall establish this equivalency 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 refer the applicant's record to: (a) Admit unconditionally, (b) admit on probation, (c) require enrollment for a specific period during a summer session, or (d) reject for admission.

2.52) Admission of undergraduate students by transfer The applicant must submit a formal application and statement of course 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 in all college work undertaken.

From applicants who do not meet recommended requirements, the director of admissions will review individual records and may offer provisional admission.

681 - 5.4.0(262) Graduate College Graduates of any college or university accredited by regional accrediting associations may be admitted to the graduate college. Admission to the graduate college is not the equivalent of acceptance as a candidate for an advanced degree. Each acceptance is given usually after the completion of residence of work at the university and upon recommendation of the major department and approval by the dean of the graduate college. The acceptance of a student as a degree candidate is determined upon the merits of each individual case.

A student who is within four semester hours of completing his senior year at an institution other than the University of Iowa may be given a tentative admission to the graduate college.

681 - 2.7(262) College of Law 2.71) Application for admission Address all inquiries concerning admission to the Director of Admissions, University of Iowa, Iowa City, Iowa. Beginning students may enter the college of law only in the summer session or the fall semester. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

To be considered for admission, an applicant should have attained a cumulative grade-point average of at least 2.3 on all college work undertaken. The grade-point average is based upon the University of Iowa's grading system in which a grade of A is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Applicants on presentation must present a baccalaureate degree from an approved college or university prior to commencing work in the college of law.

Each applicant for admission must take the Law School Admissions Test administered by the Educational Testing Service, Princeton, New Jersey, and have his score forwarded to the college of law. The test is given several times per year and may be taken at several locations in the United States and throughout the world. Applicants are urged to take the test in the fall or winter preceding the fall semester for which they are making application. Except upon a showing acceptable to it, the admissions committee will not consider applications from students who fail to take the test prior to the June 1 preceding the fall semester in which they wish to enter.

Eligibility of the specific requirements for admission listed above does not ensure admission to the college of law. From the approved meeting of the minimum requirements, the admissions committee of the college of law will select those applicants who, in their judgment, appear to be best qualified for the study and practice of law. The law admissions committee may require personal interviews of applicants.

2.72) 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) it is good standing at the time of withdrawal/exclusion 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 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 consult their law schools about the procedures required for admission to the first-year class.

681 - 5.8(262) College of Medicine 2.81) Application for admission 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 review each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Eligibility of the specific requirements for admission listed below does not ensure admission to the college of medicine. From the approved meeting of 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 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 admission to this college of medicine will be considered by the college only under exceptional conditions.

The college curriculum must include at least three years of college work including specific required science courses as prescribed by the college of medicine.

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 2.3 for all college work undertaken. The quality of work in prerequisite science is very basic to admission to medicine, special attention will be given by the admissions committee to grades in sciences. 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 admission test which is administered for the Association of American Medical Colleges. Applicants are required 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 notified 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 services, an X-ray film of the chest and successfully demonstrate withstand smallpox prior to registration.

2.9(2) Admission to advanced standing
If a student prepares to enter a college of medicine who has met entrance requirements in college, students from other approved medical colleges may be admitted to advanced standing according to the following conditions:
Only applicants of high scholastic standing will be considered for admission.
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.
Applicants will receive an offer of admission from the dean or registrar of the college from which the applicant comes, showing the actual amount of the student has spent in the study of medicine, the course taken, and the grades received, together with a statement of the work necessary to enter upon the course in medicine.
No advanced standing will be granted to students from other than approved medical schools. Students may be granted subject credit upon recommendation of the head of the department concerned, for work taken in other than medical schools.

2.9(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(26) 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. Applications for admission to the accelerated program in nursing must present a minimum of 39 semester hours completed in an accredited college, for admission to the college of nursing an applicant must have:
1. Completed specified core course work as prescribed by the faculty of the college. The director of admission will provide a list of the course work required.
2. Completed the American College Test.
3. Presented satisfactory on all courses undertaken.
Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admission committee of the college, and, upon favorable recommendation of the committee, such students may be granted conditional or probationary admission.
All applicants meeting the minimum requirements listed above, however, does not assure admission to the college of nursing. From these applicants who meet the minimum requirements, the admission committee will select the applicants who, in their judgment, appear to be best qualified.

681—2.9(26) College of Pharmacy
2.10(1) General basis for admission
Eligibility for the college of pharmacy requires admission does not ensure admission to the college of pharmacy. From the applicants meeting the specific requirements, the admissions committee will select the applicants who in their judgment appear to be best qualified. Applicants for admission to the college of pharmacy should have graduated from an approved high school or have an equivalent amount of attendance.

2.10(2) College work
The college work as outlined below will meet the minimum academic requirements for admission to the college of pharmacy. The minimum should include 32 semester hours of college level work exclusive of credit in military and air and general 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 16 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.

681—2.11(26) College of Liberal Arts
Applicants for admission to liberal arts must meet the standards set by the three state institutions in Iowa as listed in 1.1(252), 1.1(253), and 1.1(254).

681—2.11(26) College of Education
Students at the university seeking 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.

Students from other institutions may substitute a comparable eight semester hour course in biology in lieu of zoology.
Military or air science (if available), zero to two semester hours.
Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.10(3) Scholarship and application deadline
To be considered for admission to the college of pharmacy, students must have earned a 2.00 or C average on all college 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 must be filed before March 1 for the class to enter pharmacy in September.

2.10(4) Required tests
Applicants for admission are required to take the American College Testing Program test.

2.10(5) Current requirements
Applicants who have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education may enter the college and their college average average is acceptable be admitted and granted advanced standing toward the degree of bachelor of science in pharmacy.

681—2.11(26) 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(252), 1.1(253), and 1.1(254).

681—2.11(26) College of Education
Students at the university seeking professional work in education are registered in the college of liberal arts or the graduate college. Requirements for permission to take teacher-training courses are listed in the university catalog.

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