# University Calendar

## Fall Semester
- **1986**
  - Registration begins: August 25
  - Classes begin: August 27
  - University holiday: September 1
  - Homecoming: October 11
  - Thanksgiving recess begins: November 25
  - University holidays: November 27-28
  - Classes resume: December 1
  - Classes end: December 12
  - Examination week: December 15-19
  - Commencement: December 20
  - University holidays: December 25-26

- **1987**
  - Registration begins: August 24
  - Classes begin: August 26
  - University holiday: September 7
  - Homecoming: October 24
  - Thanksgiving recess begins: November 26-27
  - University holidays: November 29
  - Classes resume: December 11
  - Classes end: December 14-18
  - Commencement: December 19
  - University holidays: December 26-28

## Spring Semester
- **1987**
  - University holiday: January 1
  - Registration begins: January 15
  - Classes begin: January 19
  - Foundation Day: February 25
  - Spring vacation begins: March 29
  - Saturday Classes only: March 31
  - Classes resume: May 8
  - Classes end: May 15-15
  - Examination week: May 16
  - Commencement: May 25
  - University holiday: May 30

- **1988**
  - University holiday: January 14
  - Foundation Day: February 28
  - Spring vacation begins: March 18
  - Saturday Classes only: March 28
  - Classes resume: May 6
  - Classes end: May 13
  - Examination week: May 14
  - Commencement: May 30

## Summer Session
- **1987**
  - Reregistration: June 8
  - Classes begin: June 9
  - University holiday: July 3
  - Classes end: July 31
  - Commencement: August 3-21
  - Independent Study Unit for law and graduate students: August 3-21

- **1988**
  - Reregistration: June 6
  - Classes begin: June 7
  - University holiday: July 4
  - Classes end: July 29
  - Commencement: August 119
Contents

What Iowa is All About ................................................. 4
Learning at Iowa ...................................................... 6
Academic Programs .................................................. 7
Admissions ............................................................ 9
Tuition and Fees ...................................................... 11
Financial Aid ......................................................... 12
Student Life at Iowa .................................................. 16
Academic Services ................................................... 17
General Services .................................................... 18
Housing ............................................................... 20
Codes, Policies, and Students’ Rights ......................... 21
Special Resources at Iowa ........................................... 22
Research Activities .................................................. 23
University Libraries ................................................ 25
The University of Iowa Health Center ......................... 27
The Iowa Center for the Arts ..................................... 30
Museum of Natural History ....................................... 31
Old Capitol .......................................................... 32
Other Resources ..................................................... 32
College of Liberal Arts .............................................. 34
College of Business Administration ............................ 240
College of Dentistry ............................................... 358
College of Education .............................................. 274
College of Engineering ............................................ 314
Graduate College ................................................... 346
College of Law ...................................................... 360
College of Medicine ............................................... 366
College of Nursing ................................................ 408
College of Pharmacy .............................................. 414
Continuing Education ............................................. 420
Administrative Officers ........................................... 422
Academic Personnel ............................................... 424
Iowa Administrative Code: Board of Regents ................. 455
Campus Map ........................................................ 462
Index .................................................................. 464
The University of Iowa is a leader in American higher education. Responsible for many historic firsts, it has won international recognition for its wealth of accomplishments in the arts, sciences, and humanities.

Founded in 1847 as Iowa's first public institution of higher education, the University has become a major intellectual and cultural center for the state of Iowa, bringing together undergraduate, graduate, and professional students from all 50 states, 130 countries, and 4,000 registered nurses, and 4,000 professional and support staff.

Award-Winning Teaching and Scholarship

The University of Iowa has a diverse and distinguished faculty that is widely recognized for its outstanding accomplishments in teaching and scholarship. Faculty members have won many awards, including Guggenheim Fellowships, senior fellowships from the National Endowment for the Humanities, and senior Fulbright Awards. Faculty bring outstanding backgrounds in research and education to their teaching assignments, thus enhancing learning for their students. The faculty have helped to produce well-informed students who have become leaders in the arts, sciences, and education.

The University of Iowa reaches out to all segments of society. While a minority of students who are high achievers, it is not an exclusive institution. Freshman enrollments are encouraged and the University enrols students from diverse economic and social backgrounds. Enrollments for fall 1980 totalled 20,951 students. This year the University drew 65.7 percent of its students from Iowa, 18.2 percent from adjoining states, 6.8 percent from the other 43 states, and 5.5 percent from foreign countries.

A member of the select Association of American Universities, an organisation of institutions that are recognized for excellence in research, the University of Iowa maintains a balance between scholarly research and teaching. There are 45 centers and institutes, in addition to many major research centers, including faculty and staff pursing research projects in a wide range of disciplines.

A Wealth of Cultural Programs and Services

The University presents a wealth of cultural programs for the Iowa City community and surrounding areas through the Iowa Center for the Arts. The center provides training and activities for professional and amateur theater, dance, and music. Performances by students and faculty as well as visiting artists from around the world. The University's Museum of Art displays its outstanding permanent collections, works by faculty and students, and traveling exhibits year round. In addition, the library's performances and visual arts, the
Academic Programs

The University of Iowa is one of Iowa's three state universities. With Iowa State University and the University of Northern Iowa, it is governed by the State Board of Regents.

The College of Liberal Arts is the core of the University of Iowa's educational mission. It offers undergraduate and graduate programs in the arts, sciences, social sciences, and humanities. The college is comprised of 18 schools and colleges, each with its own distinct mission and goals.

Degrees Offered

The University offers a wide range of undergraduate, graduate, and professional degrees. Students can choose from over 200 majors and minors across 26 colleges and schools. The University of Iowa is known for its strong programs in the arts, sciences, social sciences, and humanities.

Accreditation and Associations

The University of Iowa is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools. It is also a member of the Association of American Universities (AAU) and the Association of Research Libraries (ARL).

Schools

- Journalism and Mass Communication
- American Council on Education
- Journalism and Mass Communications
- Library and Information Science
- American Library Association
- Music—National Association of Schools of Music
- Social Work—Council on Social Work Education

Departments and Programs

Chemical and Materials, Civil and Environmental, Electrical and Computer, Industrial and Management, and Mechanical Engineering—Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology
- Chemistry—American Chemical Society
- Dental Hygiene—American Dental Association
- Economics—American Economic Association
- Dietetics—American Dietetic Association
- Economics—American Economic Association
- Home Economics—American Home Economics Association, Council for Professional Development
- Hospital and Health Administration—Accrediting Commission on Education for Health Services Administration
- Medical Technology—Committee on Allied Health Education and Accreditation of the American Medical Association
- Physical Therapy—American Physical Therapy Association
- Nuclear Medicine Technology—Committee on Allied Health Education and Accreditation of the American Medical Association
- Psychology—American Psychological Association
- Speech Pathology and Audiology—Educational Standards Board of the American Speech-Language-Hearing Association
Academic Sessions
The University's academic year consists of two semesters of approximately 16 weeks each. The University also conducts an eight-week summer session and, following that, an independent study unit of from one to three additional weeks for students in the Graduate College and the College of Law.

Academic Recognition
The University recognizes high scholastic achievement by awarding degrees "with distinction," "with high distinction," and "with highest distinction," based on three criteria:

All undergraduate colleges except Pharmacy
Highest distinction—highest 2 percent
High distinction—next highest 5 percent
Distinction—next highest 5 percent

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

Dean's List
Liberal arts students who achieve grade-point averages of 3.5 or above during a given semester on 12 or more semester hours of graded work and who have no hours of C or D grades are recognized by inclusion on the Dean's List for that semester.

President's List
Undergraduate students who achieve a grade-point average of 4.0 for two consecutive semesters on 12 or more semester hours of graded work and who have no hours of C or D grades are recognized by inclusion on the President's List.

Undergraduate Scholar Assistant Program
For students who rank in the top one percent at the University, the Undergraduate Scholar Assistant Program provides undergraduates, including freshmen, with a chance 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 social science data, program computers, edit manuscripts, or analyze data in physics.

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

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

University Marking System
Mark and Grade Point/Semester
A (4) superior
A (3) above average
A (2) average
A (1) below average but passing
F falling
H+ honors
I+ incomplete
I+ incomplete
O* no grade
P* passing
R* audit
S* satisfactory
U* unsatisfactory (Graduate College only)
W* withdrawn

*Not used in computing grade-point averages

The College of Law uses a numerical 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, "212" is the code for the course numbered 1 in the Department of Biology (2), entitled "Introduction to biology." Course numbers below 100 designate courses primarily for undergraduates; numbers 100 to 299 designate courses for undergraduates and graduate students, and numbers 300 and above designate courses primarily for graduate students.

College of Business Administration
GA Accounting
GE Economics
GF Finance
GK Management Sciences

LA Industrial Relations
LM Human Resources

College of Dentistry
81 Fixed Prosthodontics
82 Operative Dentistry
83 Endodontics
84 Removable Prosthodontics
86 Oral Pathology and Diagnosis
87 Oral and Maxillofacial Surgery
88 Dental Hygiene
89 Orthodontics
90 Pediatric Dentistry
92 Periodontics
111 Preventive and Community Dentistry
112 Dentistry Nondepartmental
114 Family Dentistry

College of Education
7C Counselor Education
7D Educational Administration
7E Early Childhood and Elementary Education
7F and 7H Foundations, Postsecondary and Continuing Education
7P and 7Q Psychological and Quantitative Foundations
7S Secondary Education
7U Special Education
7X Education Interdisciplinary

College of Engineering
51 Biomedical Engineering
52 Chemical and Materials Engineering
53 Civil and Environmental Engineering
55 Electrical and Computer Engineering
56 Industrial and Management Engineering
57 Engineering Core
58 Mechanical Engineering

91 College of Law
92 College of Liberal Arts
0 Nondepartmental Courses
85S Bachelor of General Studies Courses
L Lakeside Laboratory
1A Fundamentals
1B Elements of Art
1C Ceramics
1D Design
1E Art Education
Admissions/LEARNING AT IOWA

Applying for Admission
Prospective students interested in enrolling in any of the ten colleges at The University of Iowa should contact the Office of Admissions, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242, to request application forms and application instructions for both admission and University housing. All applicants must submit formal applications, official transcripts, and other required supporting material to the Office of Admissions. For specific admission standards of the respective colleges, please refer to the appropriate college sections of this catalog.

ACT and SAT Scores
All entering freshmen and undergraduate transfer students are required to complete the American College Test (ACT) and have their scores reported to the University before they register for classes. Scores from the Scholastic Aptitude Test (SAT) are also acceptable. The Office of Admissions recommends that students complete the ACT or SAT during the fall prior to their anticipated enrollment. The scores from these exams are used as a criterion for admission, for academic advising and course placement, and for awarding University-administered scholarships and loans.

Application Fee
A $50 application fee must accompany applications submitted by prospective students not previously enrolled for full-time study at the University. Graduate
College applicants must pay the fee unless they have earned a degree from The University of Iowa. Application fees are not refundable to Iowa residents who are denied admission.

Application Deadlines

Enrolling freshmen are urged to apply early in their junior year to arrange for University housing and to apply in a timely manner for financial aid. Entering transfer students and graduate students are encouraged to apply well in advance of the session in which they plan to enroll. All application materials are due in the Office of Admissions by the deadlines listed below. Foreign students usually have earlier application deadlines (see "Foreign Students" section).

College of Liberal Arts—Ten days before classes begin—All sessions.

College of Business Administration—May 1 for summer session; May 1 for fall semester; December 1 for spring semester.

College of Dentistry—November 30, fall semester only; preliminary applications must be submitted to the American Association of Dental Schools Application Service by this date.

College of Engineering—Ten days before classes begin; all sessions; early application is advisable since enrollment may reach capacity far in advance of the beginning of classes.

Graduate Colleges—General Graduate College deadlines: May 1 for the summer session, July 15 for the fall semester, and December 1 for the spring semester. Departments may have earlier deadlines, so early submission of materials is advised. To be considered for graduate awards, students must apply by February 1 for the fall semester.

College of Law—March 1, summer or fall semester.

College of Medicine—December 1 for fall semester only; Early Decision Plan, August 1 for the following year; preliminary applications must be submitted to the American Medical Colleges Application Service by these dates.

College of Nursing—May 1 for fall semester; December 1 for spring semester.

College of Pharmacy—March 1, fall semester only.

Dental Hygiene Program—March 1, fall semester only.

Pharm. D. Program—February 1, fall semester only.

Physical Therapy Certification Program—February 1, fall semester only.

Physician Assistant Program—January 15, summer session only.

Teacher Education Program—May 15 preceding the academic year in which the student plans to enroll in professional education courses.

Determining Residence

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

Graduate and Professional College Examinations

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

Foreign Students

The University of Iowa encourages foreign students to begin the process of applying for admission at least 12 months prior to enrollment. Applicants must satisfy all the application procedures and submit their complete application file to the Office of Admissions by the following dates. Graduate College—Students applying to The University of Iowa for financial assistance (scholarships, fellowships, assistantships): February 1 for summer session or fall semester, October 1 for spring semester. Students applying to the Graduate College who do not require University financial support: March 1 for summer session, April 15 for fall semester, October 1 for spring semester.

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

College of Business Administration—March 1 for summer session (June); March 1 for fall semester (August); September 1 for spring semester (January).

College of Engineering—March 1 for summer session (June); March 1 for fall semester (August); September 1 for spring semester (January).

College of Liberal Arts—March 1 for summer session (June); April 15 for fall semester (August); October 1 for spring semester (January).

College of Nursing—April 15 for fall semester (August), October 1 for spring semester (January).

College of Pharmacy—March 1 for fall semester (August).

English Proficiency

Applicants whose native language is not English must complete and submit results from the Test of English as a Foreign Language (TOEFL) unless they have received a degree from a university in the United States, the United Kingdom, English-speaking Africa, Canada (except French Quebec), Australia, or New Zealand.

A minimum TOEFL score of 580 is required for admission to the Graduate College. Newly admitted graduate students who score less than 580 on the TOEFL exam must complete an on-campus English proficiency evaluation prior to their first registration. Together with their academic advisors, graduate students determine what proficiency level they should enroll in English as a Foreign Language (EFL) course work. Undergraduate applicants to all colleges, except the College of Engineering, must submit TOEFL scores of at least 480 prior to enrollment registration. The College of Engineering requires TOEFL scores of at least 550 for admission. All newly admitted undergraduates are required to complete EFL courses recommended by the Department of Linguistics as a result of the English proficiency evaluation. Students must complete the course work prior to enrolling in the academic course that appears on their initial graduation progress report.

Medical Information

The Student Health Services provides health care to the registered students. A medical history form, including all information about immunizations, must be completed by the student. Proof of
immunity to measles and mumps is a prerequisite to registration. Students will be sent the medical history forms after they are admitted to the University. Completed medical history forms should be returned to the Student Health Services. A registrar's report of a student having any health problem, it is recommended that a report from the attending physician be sent to the Health Service so that continuing care can be provided.

Community College Affairs

The Office of Community College Affairs (OCCA) provides a variety of services for students transferring from community colleges. Students are encouraged to contact the office with questions concerning University services and procedures, the campus environment, and transfer policies.

Programs are conducted at The University of Iowa and at community college campuses at the request of the particular institution. In addition, OCCA develops and distributes several publications useful to transfer students.

OCCA also coordinates a computerized system of information regarding course articulation agreements. This system contains lists of community college courses that have been approved by academic departments as meeting the requirements of various baccalaureate majors.

High School Preparation

Appropriate academic preparation for college-level studies is essential. University course work is offered with the assumption that students have the necessary background and proficiency to perform successfully. Entering freshmen should have the following high school preparation:

Four years of English with as much emphasis on composition as possible;

At least three years of mathematics (preferably more if an academic plan to pursue a science major);

Three or four years of social studies and humanities course work;

At least three years of science; and

At least two years (but preferably four) of a foreign language.

Campus Visits

The Admissions Visitors Center is located at 230 North Clinton and is open weekdays and Saturday mornings throughout the year. Students and parents are always welcome and are encouraged to visit the campus. A campus visit could include a conference with an admissions counselor about academic opportunities and programs, financial aid, and housing; a campus walking tour; a tour of the residence halls; or an appointment with a faculty member or an academic advisor. Visits can be arranged by calling or writing to the Visitors Center.

Orientation Services

With the aid of representative student, faculty, and staff personnel, Orientation Services designs and conducts a wide variety of programs to help new freshmen, transfer students, and graduate students with their transition to University life. Orientation is intended to assist new students with course scheduling, academic advising, and registration procedures and to acquaint them with the educational facilities, student services, and other available sources of help. In addition, Orientation Services' programming is designed to introduce new students to the social, cultural, and recreational opportunities, to familiarize them with the physical layout of the campus, and to make them feel at home in the University community.

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, out-of-state students in good standing at any of the three Regents universities may attend another Regents university for a maximum of two semesters; the credits earned at the other university will be counted as resident credit at the home institution. Approval for participation and credit in the exchange program must be obtained well in advance of registration, since the decision to accept must be made before the semester begins. Students may request credit for additional courses with approval. Students who audit courses are assessed fees based on the lowest credit for which the course is offered that semester.

Payment of Student Accounts

Tuition and fees, board, room, and other University residence or off-campus housing, expenses, and such incidental University expenses as library and parking fees, are payable on an installment basis, with the first installment due on the first of October, November, or December for the fall semester, and the first of February, March, and April for the spring semester. Students with accounts on which the fifteenth of the month is reported to the

Tuition and Fees

The University's schedule of tuition and fees for full-time students, per semester, for the academic year 1984-85 is stated below. Extension student fees are $72 per semester hour. Correspondence courses are $42 per semester hour. All fees are subject to change by action of the State Board of Regents.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>865</td>
<td>2,040</td>
</tr>
<tr>
<td>Graduate</td>
<td>823</td>
<td>2,128</td>
</tr>
<tr>
<td>Dentistry</td>
<td>1,379</td>
<td>3,537</td>
</tr>
<tr>
<td>Law and Doctor of Pharmacy</td>
<td>955</td>
<td>2,624</td>
</tr>
<tr>
<td>Medicine</td>
<td>2,192</td>
<td>5,357</td>
</tr>
</tbody>
</table>

General fees provide for the student's use of the Iowa Memorial Union, libraries, laboratories, and gymnasium; free admission to minor sports events and to student-staff concerts; reduced rate for admission to University athletic events and theater productions, and to performances by visiting stage and concert artists; subscriptions to the student newspaper, The Daily Iowan, delivery to housing units, certain student hospital services, and various activities and services as announced.

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

Registration

All persons who attend University classes must first be admitted to the University and are required to register and pay the established tuition and fees. Students in the Graduate College and the colleges of Business Administration, Engineering, Liberal Arts, Dentistry, Law, Medicine, and Nursing must apply with proper approval. Students who audit courses are assessed fees based on the lowest credit for which the course is offered that semester.
How Aid Is Determined
Eligibility for need-based aid at The University of Iowa is determined by the same method of family financial analysis that is used by other colleges and universities throughout the country. The steps are as follows:

- The University determines the estimated costs for an academic year; this includes room and board, tuition, fees, books, and personal expenses.
- Through the College Scholarship Service (CSS) or American College Testing (ACT), the University determines the contribution the student and his or her family can make toward educational costs, based on the family’s income and assets.
- Financial need is determined by subtracting the expected family contribution from the University’s estimated costs.
- Wherever possible, financial assistance is awarded toward meeting the financial need; however, due to the large number of applicants 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 federal aid if they are U.S. citizens or eligible non-citizens and demonstrate financial need as determined by the FAF or FFS.

In order to maintain or establish eligibility for financial aid at the University, students must comply with the following reasonable academic progress 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 requirement of the colleges in which they are enrolled.

Financial aid eligibility will be cancelled for one or more of the following reasons: exhausting one’s duration of eligibility; failing to meet the requirements for semester hours completion and/or grade-point average; and failing to meet the minimum requirements of a probationary term. These and other requirements and exceptions are outlined in detail in the financial aid department's policies and procedures. Standards, which is available at the Office of Student Financial Aid.

Scholarships
Presidential, Dean’s Scholarships
The University annually awards $2,500 Presidental Scholarships, renewable for a maximum of four years of University enrollment, to the high school student in recognition of their outstanding high school achievements.

Fifty Dean's Scholarships, also merit based, are awarded. These are freshman-year, non- renewable scholarships equivalent to the amount of resident tuition. For further information students should contact their high school guidance counselor or the UI Office of Admissions.

The Iowa Center for the Arts Scholarship
The Iowa Center for Arts Scholarships are awarded primarily on the basis of artistic ability. Each department (art, dance, theater, and music) awards one scholarship to an entering freshman. The scholarship is the highest award possible to entering freshmen. A maximum of four $2,500 awards/academic year, non-renewable stipends are awarded. Each department sets its own eligibility and selection criteria and there is no low residency requirement. For further information, students should contact their high school fine arts teacher, the UI schools or departments administering the scholarship, or the UI Office of Admissions.

The University of Iowa Minority Achievement Scholarship Program
The University of Iowa Minority Achievement Scholarships are awarded to minority students based on outstanding high school achievement. Ten scholarships for $2,500 per year are awarded; these are renewable for a maximum of four years. For further information students should contact their high school guidance counselor or the UI Office of Special Support Services.

National Merit Scholarships
The University sponsors a number of National Merit Scholarships for entering freshmen who have participated successfully in the National Merit
Scholarship competition. Based on financial need, these awards range from $750 to $2,000 per year and are renewable for a maximum of four years.

Freshman Honor Scholarships

Entering freshmen who qualify for participation in the College of Liberal Arts Honors Program by achieving a composite ACT score of 27 or above are recognized as Freshman Scholars and automatically receive $1,000 Freshman Honor Awards. The scholarship is not based on financial need and is applied directly toward tuition.

Transfer Honor Scholarships

Iowa community college students transferring to the University with a 3.0 grade-point average or above automatically qualify for $1,000 Honor Scholarships. The scholarship is not based on financial need and is applied directly toward tuition.

Departmental Scholarships

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

General Scholarships

General scholarships are institutional funds awarded on the basis of financial need and academic achievement. An entering freshman must have an ACT composite score of 28 or above or rank in the upper 10 percent of his or her high school graduating class in order to qualify. Upperclassmen or transfer students must have at least a 3.0 cumulative grade-point average to qualify for the scholarship. The maximum amount is $3,000 per year and is applied directly toward tuition. The scholarships are for undergraduates without a bachelor's degree who are enrolled full time.

LaVerna Noyes Scholarships

LaVerna 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 FAF/FPS and obtain the LaVerna Noyes application from the Office of Student Financial Aid.

Grants

Pell Grants

Undergraduate students without a bachelor's degree may be eligible for a Pell Grant. The awards range from $800 to $2,100 per academic year, depending on financial need and federal funding. Students must be enrolled at least half time in a degree program in order to be eligible. Students may use the FAF/FPS to apply for a Pell Grant, or they may obtain the application for Federal Student Aid from my high school or from any college or university financial aid office.

Supplemental Educational Opportunity Grants (SEOG)

The SEOG program provides federal aid to undergraduate students without a bachelor's degree 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 FAF/FPS determines eligibility for this program.

Educational Opportunity Program (EOP) Grants

Institutional funds are awarded to students admitted to the U of I Special Support Services program who show exceptional financial need. Parental income and asset information must be reported. The EOP or FPS determines eligibility for this program.

Graduate Tuition Grants

Graduate Tuition Grants are institutional funds for graduate students in degree programs. The grants are based on financial need and are applied directly toward tuition. The FAF or FPS determines eligibility for this program.

Loans

National Direct Student Loans (NDSL)

The NDSL is a long-term federal loan based on financial need. The amount of the loan 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 FAF/FPS determines eligibility for this program.

Guaranteed Student Loans (GSL)

The Guaranteed Student Loan is a low-interest loan made to students by a lender such as a bank, credit union, or savings and loan association. These loans are insured by a guarantee agency in each state and reinsured by the federal government. Students must be enrolled at least half time. The interest rate is 7.9 percent, and repayment begins when recipients cease to be at least half-time students. GSLs are available from the lending institution.

Health Professions Student Loan

Health Professions Loans are long-term federal loans for students enrolled full time in the Colleges of Medicine, Dentistry, or Pharmacy. Amounts available depend on federal funding. The maximum amount is 10 percent. The FAF/FPS determines eligibility for this program.

Nursing Student Loans

A long-term federal loan is available for students enrolled at least half time in the College of Nursing. Amounts available depend on federal funding. Repayment begins nine months after recipients cease to be at least half-time students. The interest rate is 6 percent. The FAF or FPS determines eligibility for this program.

Jobs

Part-Time Jobs

Student part-time employment can provide a meaningful work experience as well as assistance in meeting educational expenses. The University of Iowa employs nearly 9,000 students in a variety of positions. Ranging from accountant to writer, the types of jobs available offer students the opportunity to increase skills, gain experience, and earn money.

Student part-time employment is limited to 20 hours per week. The minimum wage paid by the University is $8.50 per hour. Students employed on an hourly basis are paid by check once every two weeks.

Notices of job openings are posted on job boards located outside of the Office of Student Financial Aid or on the second floor of Caver Hall. The building is open from 7:30 a.m. to 7:30 p.m. Monday through Friday, and 8 a.m. to 5 p.m. on Saturday and Sunday evenings. The campus newspaper, The Daily Iowan, also carries job listings in the classified ads. Friends, advisors, and instructors are other sources of information about jobs.

Students contact the 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 Office of Student Financial Aid to process payroll paperwork.

College Work-Study

The College Work-Study Program is a federal work-study program that helps students earn money to meet educational expenses. The amount of a student's College Work-Study award is based on financial need and legislative funding. Students earn a wage based on at least half time in a degree program. The work experience should complement and reinforce the educational goals of the student, College
Work-Study employees cannot work more than an average of 20 hours per week. The FAF or PFS determines eligibility for this program.

Other Sources of Aid

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

Information about financial assistance for physically handicapped students is available from the University's Office of Services for the Handicapped.

Information about financial assistance for veterans of United States military service is available from the University's Office of Veteran Services.

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

Undergraduate Scholar Assistant works with professor

Additional Information for Graduate Students

The primary sources of financial aid available to graduate students are the University Teaching and Research Assistantships, University Teaching-Research Fellowships, scholarships, and Graduate College Fellowships. Information on these awards and appointments can be obtained from the graduate student's department or program.

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.
Computer registration at Calvin Hall
Student Life at Iowa

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Services</td>
<td>17</td>
</tr>
<tr>
<td>General Services</td>
<td>18</td>
</tr>
<tr>
<td>Housing</td>
<td>20</td>
</tr>
<tr>
<td>Codes, Policies, and Students' Rights</td>
<td>21</td>
</tr>
</tbody>
</table>

Black Action Theater
Academic Advising Offices

Faculty Advisers
Each student is assigned an academic adviser to assist with educational planning, academic counseling, and registration. Students with declared majors are assigned advisers in their major departments. Students who have declared preprofessional majors are assigned advisers in the Undergraduate Academic Advising Center. Students in professional colleges (Business Administration, Education, Engineering, Nursing, Pharmacy, Dentistry, Law, and Medicine) are advised by the college deans or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

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

Undergraduate Academic Advising Center
Professional advisers at the Undergraduate Academic Advising Center are trained to help students who wish to explore various fields of study as they select career paths and make academic plans appropriate to their interests. Advisers’ offices are located conveniently in student residence halls.

Collegiate Academic Offices
Each of the undergraduate colleges of the University has a collegiate academic/student affairs office. These offices are available to all students in the respective college for assistance with questions concerning academic policies and degree requirements, grading options, career and degree plans, and other items of concern.

They assist students who want to change advisers or majors, and they act on student complaints.

Cooperative Education
The Cooperative Education staff works with students, faculty, and employers to integrate work with study and contribute breadth of knowledge to students’ education through supervised work experiences. Participation in Cooperative Education helps students to apply education in professional settings, earn professional experience before graduating, explore various major/career options through multiple Cooperative Education experiences, and earn from professionals about areas not covered in classes.

Students from the University’s ten colleges must meet eligibility requirements of their own department or college and receive faculty approval to participate. Opportunities are available year-round in a wide variety of organizations to undergraduates, graduates, and professional college students. The Office of Cooperative Education is the central academic support office that helps individual colleges and departments provide educational work experiences to students.

Office of 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 student/scholar program and for the study abroad program. It also has developmental responsibilities in international studies and technical cooperation activities. The OIES works to enrich the campus by adding an international dimension to it. The OIES promotes development and cooperation among the areas of international studies, foreign language and area studies, cooperative and topical studies, and foreign language departments. It also assists faculty and students who wish to travel internationally.

Through technical cooperation and faculty exchange programs, the OIES encourages the development of international links between University of Iowa departments and their counterparts in foreign institutions.

The liaison office for the Midwest Universities Council for International Activities (MUCIA) is located in the OIES, encouraging involvement of University of Iowa faculty in MUCIA activities.

The OIES provides services and facilities and organizes extracurricular programs for both foreign and domestic students and faculty. It maintains a library with references on study, work, and travel in other countries, including information about foreign universities and study-abroad programs open to UI students. Students can take study-abroad programs to complement their on-campus academic programs, and helps arrange that they receive the correct credit for such activities. Students also obtain information and applications for the Fulbright, Marshall, and Tübingen awards at the OIES.

Foreign student advisers provide information, counseling, and services related to orientation, immigration regulations, financial aid, and liaison with foreign government and sponsoring agencies, and help with problems and questions in most areas except academic advising. They sponsor or support educational programs, such as the Friends of International Students, the

Placement Services, Career Information

Business and Liberal Arts Placement Office
The Business and Liberal Arts Placement Office provides programs and services to assist seniors and graduate students seeking employment in business, industry, government, and nonprofit agencies. Along with on-campus interviews that take place in the fall and spring, students and alumni can request a subscription to a weekly Job Bulletin and a reference file service.

The office offers programs on resume preparation, job hunting, and interviewing skills and provides individual advising with professional staff. A reading room offers information on employers, salaries, and employment trends.

In addition to placement services for liberal arts and business students, the office also coordinates placement information among the other collegiate placement centers on campus. Offices are located in Phillips Hall and The Iowa Memorial Union.

Career Information Services
The Career Information Services office is located in the Iowa Memorial Union. It provides advising and information that help students plan their careers.

Career Planning
Advisors assist students in all stages of the career planning and decision-making process. Individual advising and career services help students define their interests, abilities, values, and work and lifestyle preferences. Advisors also help students explore occupational information, investigate career options, and develop application strategies for obtaining immediate and long-term career objectives.

Career Resource Center
The Career Resource Center is a self-help career information center. It provides information on labor market trends, career options, academic requirements for specific careers, work environments, places of employment, salary ranges, advancement opportunities, and geographical regions of the country. The center also maintains information on developing strategies for finding jobs, researching organizations and nonprofit agencies, defining job objectives and writing resumes and cover letters; and improving interviewing skills. An adviser is on duty to help students use the material.
No appointments are necessary.
Mathematics Tutorial Lab
The Mathematics Tutorial Laboratory, sponsored by the Department of Mathematics, serves as a training tool for students who don't have adequate high school mathematics preparation for the University's required math course. The primary function of the math lab is to provide tutoring to students enrolled in 22M:1 Basic Algebra I, 22M:2 Basic Algebra II, 22M:17 Quantitative Methods I, and 22M:8 Quantitative Methods II. As staff time permits, the math lab also provides tutoring services to students in other precalculus mathematics courses.

The math lab is staffed by professional staff, faculty, and graduate student teaching assistants who are trained in helping math-anxious students.

Reading Lab
The Reading Lab of the Rhetoric Program provides a variety of individualized and class instruction for University students who want to improve their college-level reading performance. Working with the student, Reading Lab staff members arrange an individual reading program. These programs consist of course reading that is difficult for the student with elective reading based on the student's needs.

The Reading Lab offers one service course, Voluntary Reading Lab, which requires the student to attend twice a week for one hour each session. In the lab service course, which carries no credit and assigns no grade, students write about their reading and discuss it with a tutor.

The lab also offers 10 Rhetoric, a one-semester, two-hour-service course for students who need exceptional help preparing for college-level reading and SP Reading Comprehension, SP3C Speeded Reading, and SP4R Practice in Reading Vocabulary, independent five-week modular courses for 1 semester hour of credit each.

Writing Lab
The Writing Lab provides individualized writing experiences for University students who feel inadequately prepared for college writing. Lab students discuss their work in personal conferences with teachers, who offer suggestions and connect the students to the outside world, thus helping them learn how to develop their ideas clearly and coherently.

Students can enroll for noncredit work in the lab throughout the semester, or they can register for the credit course (101 Rhetoric) before or after taking a required rhetoric course, or transfer to 101 Rhetoric from another rhetoric course after discussing their writing problems with their rhetoric teacher and the director of the Writing Lab.

Registrar
The Office of the Registrar determines the residence status of each student, issues University identification cards, supervises registration procedures, assesses fees, and maintains all students' academic records. It issues official transcripts and verifications and assists students in determining graduation requirements, processing applications for degrees, and interpreting college and University academic regulations. The office also provides assistance to students concerning selective service and military service matters, and helps student veterans with University application and enrollment procedures and receipt of Veteran Administration benefits.

Transcripts
Students who have completed work at The University of Iowa can obtain an official transcript of that work upon request to the Office of the Registrar. Fees are $3 for the first copy and $1 for each additional copy on the same order. An official transcript cannot be issued for a student who has a past due University account.

Services for Handicapped
The University of Iowa is committed to making its facilities, services, and programs fully accessible to people with disabilities. The Office of Services for Handicapped (OSH) provides services to students with both visible and nonvisible disabilities. A wide range of disabilities are accommodated, including hearing and speech impairments, learning disabilities, mobility restrictions, visual impairments, and others. The goal of OSH is to help students with disabilities enjoy the same rights and assume the same responsibilities as do other students.

OSH works closely with University faculty and staff to ensure that students receive the maximum benefit from their experience at the University of Iowa. Assistance is provided in the areas of admission, orientation, academic and career planning, academic support services, financial aid, housing, transportation, and parking, and attendant care, and health services. The Office of Services for Handicapped helps students on an individual basis to locate the type of assistance appropriate to their needs, from securing tutors or personal attendants to finding tape recorders or emergency loan wheelchairs.

Special Support Services
The Office of Special Support Services works to increase the racial diversity in the student body as well as to provide eligible students with academic, social, and financial support.

Special Support Services is made up of the following programs: The Upward Bound Project, New Dimensions in Learning, the Afro-American Cultural Center, the Chicano/Columbian American Cultural Center, the Undergraduate Educational Opportunities Program, and the Graduate and Professional Educational Opportunities Program.

General Services
Campus Information Center
Located in the south lobby of the Iowa Memorial Union, the Campus Information Center provides information about campus and community activities and University services and operations; refers inquiries to appropriate campus and community resources; and compiles the master calendar of campus events. It also maintains the Housing Clearinghouse, which provides up-to-date listings of available rental units, city and campus maps, lists of markets, hotels, motels, and apartment complexes, and coordinates a roommate matching service. The center is open seven days a week.

Campus Programs and Student Activities
The Office of Campus Programs and Student Activities (CPSA) provides diverse and balanced programs and activities for the Iowa Memorial Union and the campus as a whole and assists students and student organizations.

Students are welcome to seek guidance from professional advisors in CPSA about how they can find and become involved in organizations suited to their interests. Students with special needs who want to form new groups or organizations can request guidance from CPSA staff. Workshops and a well-stocked resource center are available to student organizations.

Campus programming and planning special events are ongoing tasks for program advisors and students. They include...
Intercollegiate Athletics for Women

The University of Iowa sponsors nationally competitive intercollegiate athletic varsity teams for women in basketball, cross-country, field hockey, golf, gymnastics, swimming and diving, tennis, track and field, and volleyball. All ten varsity teams compete for championships sponsored by the Western Intercollegiate Conference of Faculty Representatives (Big Ten Conference) and the National Collegiate Athletic Association (NCAA). Athletic scholarships are available in all ten programs to qualified student-athletes. In 1980 women's intercollegiate athletics was included under the University Board in Control of Athletics.

Intimal Sports and Recreational Services

The Division of Recrational Services administers a program of more than 30 intramural sports and recreational activities for all interested University students and offers a wide range of recreational lesson programs in activities such as martial arts, tennis, golf, aerobics, bowling, swimming, and gymnastics. The division provides intramural activities for students, faculty, and staff members; the programs andintramural activities are available to students and staff members, including basketball, badminton, volleyball, water ski, table tennis, swimming, handball, paddleball, racquetball, squash, canoeing, golf, archery, weight training, tennis, and jogging.

The division's Touch the Earth Outdoor Program offers activities such as rafting, bicycle trips, backpacking, fishing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Recreational, camping, equipment, trophies, ice skates, and cross-country skiing equipment also are available for rent at a minimal fee.

The division also manages the MacBride Nature Reserve, 435 acres of wooded terrain situated on three sides of the Curvillle Reservoir and Lake MacBride north of Iowa City. Primitive camping, hiking trails, cross-country ski trails, sailboat and canoe rentals, picnic sites, and an archery range are available for public use.

Iowa Memorial Union

The Iowa Memorial Union in the hub of student life. Its facilities include the Campus Information Center; the University Box Office and student ticketing services; the Office of Campus Programs and Student Activities; a coffeeshop with live entertainment; a lounge, and a variety of food services; a recreation area with tables and electronic games, an art and craft resource center, a bookstore; room for lectures, concerts, meetings, and social events; and art and sculpture display areas. The adjoining Iowa House has 18 guest rooms for parents, alumni, conference participants, and other visitors to the campus. Also housed in the union are the Student Activities Center and student organization offices, the University Counseling Service, the Career Information Services office, the Center for Conferences and Institutes, a copy center, and a barber shop.

Health Services

The Student Health Services are located in the Secondler Building on the University health campus. All registered students at the University, except those registered in off-campus courses, are eligible for health care at the Student Health Clinic.

There are charges for laboratory procedures, X-rays, accident examinations, minor surgery, and some special procedures. All students are advised to have health and accident insurance. A University-sponsored group insurance is available for students in individual or family plans.

University Counseling Service

The University Counseling Service staff of professional psychologists, social workers, and advanced doctoral students offers educational, vocational, and personal counseling and therapy to individual or group sessions, workshops, and consultation activities. All services are available to students without cost.

Veterans Services

The Office of Veterans Services is part of the Office of the Registrar. It serves veterans, dependents, and veterans' families in all matters relating to Veterans Administration educational benefits, University registration, and study at the University.

Women's Resource and Action Center

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

The WRAC provides a resource for many women's organizations; sponsors a Brown Bag Luncheon program; offers evening and weekend workshops, lectures, films, and
Housing

Fair Housing Policy
The following is the University’s statement on fair housing practices: “It is and shall be the firm policy of the University that housing provided not to all students on the basis of sex, race, color, creed, or national origin.”

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

University Residence Halls
Residence hall programs, policies, procedures, and employment practices are consistent with the University human rights policies, the State Board of Regents nondiscrimination policy, and—where appropriate—with the state of Iowa civil rights and federal regulations on equality of opportunity and affirmative action.

University residence hall furnishings, facilities, and services are designed to provide a pleasant atmosphere conducive to effective study. Single, double, triple, and quadruple rooms with hall or partial board are available in the Grand Avenue Residence Halls (west campus); the Hilltop Halls, Quadrange, South Quadrangle, Kinnick, and Slater halls; and in the Clive Street Residence Halls (east campus), which include Bridge, Center, Dues, Mayflower, and Stanley halls. There are lounges, study areas, game rooms, coin laundry facilities, and small storerooms in or available to each residence hall. Computer terminals, reference materials, drawing libraries, and private rooms for group study sessions are available in three multimedia learning centers.

Each residence hall is divided into small living units. Each hall has a live-in hall coordinator, and there is a student resident assistant in each living unit. All students are encouraged to participate in residence hall government to plan programs and discuss issues.

Students and staff-initiated programs and activities provide opportunities to pursue social, recreational, cultural, and educational interests. Several classes are taught in residence halls. Academic advising centers and tutorial sessions are available.

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

Applications and Assignments
With their admission application forms, prospective undergraduate students receive separate forms on which to apply for residence hall accommodations. A student applying for residence hall accommodations should read the forms and conditions of the contract, provide all information requested on the application form, sign the contract portion, and return the completed application in the contract and a check for $50 to the University Housing Assignment Office, R Jesse Hall. Students will not receive a room assignment until they have been admitted to the University. However, students may apply for housing at the same time they apply for University admission.

Roommate assignment is made without regard to race, color, nationality, or religion.

The residence hall application/contract and $50 advance payment constitute a contract offer. An application may be withdrawn by the student to the University Housing Assignment Office in writing before the 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.

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 1966-67 academic year are $2,244 for a double room and $2,067 for a triplex, with hall rates. Rates for the several available room and board options vary according to the accommodations, and all rates are subject to change annually.

Family Housing
There are 799 University-operated apartments available to married students or legally defined family units in the Hawkeye Drive, Hawkeye Court, Hawkeye Park, and Fairhaven complexes. Rates for 1966-67 range from $125 to $250 per month for one-bedroom units and from $175 to $265 per two-bedroom units, not including gas, electricity, and telephone. All units are furnished. Rates are subject to change annually.

Family housing is assigned according to the order in which applications are received. The applicant must meet all University admission requirements before an assignment can be made. Applications may be filed before completion of admission, but will not be accepted more than a year in advance.

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

Fraternities and Sororities
Twenty-three undergraduate and six professional fraternities operate chapter houses at Iowa. House accommodations include 35 to 45 men.

Undergraduate fraternities are Acacia, Alpha Epsilon Phi, Alpha Tau Omega, Beta Theta Pi, Delta Chi, Delta Tau Delta, Delta Zeta, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Phi, Phi Kappa Sigma, Pi Kappa Alpha, Sigma Alpha Epilson, Sigma Alpha Mu, Sigma Chi, Sigma Nu, Sigma Phi Epilson, Sigma Pi, Sigma Tau Gamma, Tau Kappa Epilson, and Theta Xi.

Professional fraternities operating chapter houses are Alpha Chi Sigma (chemistry), Alpha Kappa Kappa (medicine), Delta Sigma Delta (dentistry), Phi Delta Pi (medicine), Phi Rho Sigma (medicine), and Phi Omega Delta (dentistry).

The 16 national sororities with active chapter houses at Iowa are Alpha Chi Omega, Alpha Delta Delta, Alpha Gamma Delta,
Code of Student Life

As members of the academic community, students are encouraged to develop a sense of personal integrity and to engage in a sustained and independent search for truth. Freedom to teach and freedom to learn are inseparable facets of academic freedom. The freedom to learn depends on appropriate opportunities and conditions in the classroom, on the campus, and in the larger community. Students are expected to exercise their freedom to learn with responsibility. The University has developed a Code of Student Life to provide and safeguard the right of every individual student to exercise this freedom to learn without undue interference by others. This code applies only where a student's conduct has adversely affected a University process or function or some element or clear interest of the University as an academic community. Students are expected to acquaint themselves with the code and to conduct themselves in accordance with the standards it sets forth.

University Policy on Human Rights

The University of Iowa brings together in common pursuit of its educational goals persons of many nations, races, and creeds. The University is guided by the principle that in all of its programs shall there be differences in the treatment of persons because of sex, creed, color, national origin, age, sex, and any other classifications. The University recognizes the human rights of all persons, and it is committed to ensuring that these rights are protected. Therefore, the University has established a grievance procedure to address complaints of discrimination.

Policy on Sexual Harassment

Under the Regents Rules of Personal Conduct and the University of Iowa Human Rights Policy, faculty, staff, and students have a right to be free from sexual harassment by colleagues, supervisors, or teachers. The University does not condone actions and does not believe that a reasonable person would regard as sexually harassing. Individuals who feel that they have been the object of such harassment should advise their supervisor, dean, or the University of Iowa affirmative action officer. In investigating such complaints, the following principles are observed:

1. The person bringing the complaint would suffer no retaliation.
2. The complaint must not be discussed with anyone else without the complainant's permission.
3. If it is determined that sexual harassment has occurred, the student may be referred to the appropriate department or organization. The student may also be referred to the Office of the Vice President for Student Life. In conducting such an investigation, the right to confidentiality, both of the complainant and of the accused, must be respected.
4. The investigation must be conducted as quickly as possible and the results reported to the complainant.

In the event that the complaint is found to be valid, the person who has been guilty of sexual harassment must receive appropriate counseling or disciplinary action, as would be the case in other instances of violation of University policy.
Special Resources at Iowa

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Activities</td>
<td>23</td>
</tr>
<tr>
<td>University Libraries</td>
<td>26</td>
</tr>
<tr>
<td>The University of Iowa Health</td>
<td>27</td>
</tr>
<tr>
<td>Center</td>
<td></td>
</tr>
<tr>
<td>The Iowa Center for the Arts</td>
<td>30</td>
</tr>
<tr>
<td>Museum of Natural History</td>
<td>31</td>
</tr>
<tr>
<td>Old Capitol</td>
<td>32</td>
</tr>
<tr>
<td>Other Resources</td>
<td></td>
</tr>
</tbody>
</table>

Studying at the Museum of Natural History
Research Activities

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

The University builds for the term "research" a place in every field. Imaginative originality, whether in the fine arts or in the sciences, is at a common character and significance of the overall intellectual life of the institution.

The Office of the Vice-President for Educational Development and Research maintains an overview of the many individual research commitments of the institution and actively promotes, in a variety of ways, the research missions of the University and the educational development efforts of the faculty. This office has an interlocking relationship with the Graduate College because of the all-University character of the college and the close connection between the graduate programs and research and creative activity.

The University Research Council assists the vice-president for educational development and research in a regular advisory capacity. The council consists of two faculty members who are actively recognized for their personal involvements in basic research or creative activity, one representative of the University staff, and two student members. Faculty members include two each from the physical, biological, and social sciences and humanities, and two from the faculty at large. The council serves as a coordinating body to maintain and encourage the cross-fertilization of ideas and policies regarding the University's research and creative activities, the revision of policies and procedures concerned with securing and allocating funds, for support of research and creative activity, and the interpretation of Board of Trustees policies and procedures 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, the director of the University Activities Office, and the Committee of the University, the Office of the Vice-President for Educational Development and Research currently supports the following programs:

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 (covered by the terms of the Faculty, Medicine, and Pharmacy) who want to do research-related research. To qualify, the faculty member must hold a full-time appointment as instructor or assistant professor. The funds may be used for any purpose that will assist the faculty member in conducting his research program or in developing his research capability to the maximum extent.

Incidental Grants

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

Services

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

Central Research Facilities

To maintain state-of-the-art resources for research facilities available within the University, selected facilities are utilized for centrally supported development. Such facilities are available to all interested researchers at the University. They currently include the following.

Computer-Assisted Image Analysis Facility

The Image Analysis Facility, located in the Medical Research Center, provides instrumentation and technical assistance for research programs involving digital image processing and analysis.

Two Gould Deans XN 200 imaging Processing systems and a PSSD Evans and Sutherland system are in operation, along with two MicroVax II minicomputer systems, an Exxon EC 350 digital camera, and various multi-storage peripherals. Acquisition software includes Micro VAX, XORTAN, and Pascal complex, as well as the Gould Deans Library of Image Processing software (LIPS).

The facility has the capacity to digitize images from microscopic slides, autoradiographs, photographs, and video signals. Mass storage peripherals allow for the transfer of images that have been digitized elsewhere. Once digitized, images may be processed in a number of ways, including pseudo-color coding, edge detection, and gray-scale enhancement techniques.

Electron Microscope Facility

The Electromicroscopy Facility at 3 provides instrumentation and technical assistance for research programs involving the use of scanning and transmission electron microscopy. The facility includes a JEOL JSM-5C microscope equipped with a Zeiss X-ray microanalyzer, a Hitachi H-600 transmission electron microscope equipped with a Zeiss X-ray microanalyzer, a Balzers BSE-100 E-beam fracture-freeze-drying apparatus, an automatic tissue processor, glass-keeping machine, clinical slabs, ultramicrotomes— including a Reichert ultracut II—cutting microscopes, a Zeiss Axioskop digital image analysis system, vacuum evaporator, critical point drying equipment, light microscopes, centrifuges, ovens, and fully equipped photographic darkrooms.

The facility also provides all solutions and supplies necessary for investigations involving specialized staining and embedding techniques, negative and immunolabeling metal-coating, autoradiography, immunocytochemistry, morphometry, sample preparation for thin and freeze fracture, the preparation of material...
SPECIAL RESOURCES AT IOWA/Research Activities

science samples for both TEM and SEM, and other procedures. A modern library containing texts and reviews of various applications for TEM and SEM also is available.

The facility is intended to serve both the experienced and the novice investigator and to provide training for those who need it. All or parts of a project can be handled by the facility staff. All instrumentation is available on a first-come, first-served basis. The laboratory is located in the Iowa Science Building of the College of Medicine.

Flow Cytometry Facility

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. It is equipped with an advanced fluorescence-activated cell sorter (Becton-Dickinson FACS), which is interfaced to computerized data acquisition and storage electronics. The flow cytometer will measure any optically detectable cellular property, such as fluorescence or size, to generate population distributions. Up to four parameters may be concurrently evaluated per cell. A variety of cellular macromolecules can be quantified. Detectable parameters include two spectral regions of fluorescence, narrow angle light scattering, and fluorescence polarization anisotropy. Optimal operation is done with an argon ion laser with ultraviolet capability. The instrument was physically isolated so no identified cell subpopulation to yield viable cells for subsequent experimental use. The facility provides optimal conditions for staining with fluorochromes, tissue culture, and preparation of smears by microscopy. It is housed in the Medical Laboratories of the College of Medicine. Educational tours are conducted upon request.

High Field Nuclear Magnetic Resonance Facility

A recently acquired superconducting Bruker WM 360 spectrometer forms the basis for the High Field NMR Facility. The persistent magnet operates at 86.6 kilogauss. The field of 360 MHz is utilized for proton observation. Very high spectral resolution and sensitivity can be achieved for study of complex molecules in solution. Multidimensional, variable temperature, and selective pulse experiments are possible. Both hard and floppy disk systems provide data storage. Either digital or standard X-Y plotting is available. Proton and other NMR spectra are recorded in form sample tubes, carbon-13 spectra are obtained in 5mm or 10mm tubes, and heteronuclear spectra are obtained in 8mm tubes. Protons and fluorine-19 decoupling of carbon-13 spectra is possible. For the casual user, spectra are recorded by a technician, who has background in areas that are encouraged for the frequent user. The facility is located in the north wing ground floor area of the Chemistry-Boony Building.

High Speed Computational Facility

The High Speed-Computational Facility, located in the Engineering Research Building, fills the gap between conventional computing provided by University of Iowa departmental equipment and supercomputers provided at national centers. A joint venture of the Center for Computer-Aided Design and Wieg Computing Center, the facility provides state-of-the-art, high-speed computational support for research by faculty, staff, and students. Support services include assistance in program adaptation for execution on facility computer, assistance in vectorization of code for more efficient use of facility equipment and off-site supercomputers, development of improved communication equipment for software to permit researchers to effectively use supercomputers that are available in a variety of federally supported facilities, and access by graduate students as part of their graduate education.

Major instrumentation consists of a VAX 11/780 Superminicomputer with associated peripherals and a Cray XE4 High Speed Arithmetic Processor. Communications equipment provides campus-wide terminal access.


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 yeasts and bacteria.

With its new, sophisticated growth, monitoring, control, and harvesting systems, the facility is one of only four medium or large-scale fermentors in the United States that are able to grow transgenic bacterial and is one of only five or six such facilities able to grow extremely thermophilic bacteria at 70-100 degree C. The largest vessel in the facility—100 liters—is a rare fixed containment of genetically engineered organisms.

The facility director is available for consultation on medium composition, fermentor conditions, and growth strategies. Further services are provided in areas such as inoculum preparation, medium preparation, sterilization, process initialization, inoculation (growth monitoring if required), and harvesting. Users can arrange for preliminary pilot studies, gas chromatography, and other desk-top technical and scientific services.

Laser Facility

The Laser Facility consists of a wide variety of modern laser instrumentation. In particular, state-of-the-art Ar and Kr ion lasers (with ultraviolet capabilities) are employed, either alone or in conjunction, to pump a Tunable Dye Laser System, throughout the visible and near infrared regions of the spectrum. Each CW laser is routinely operated in single mode with a line width of one-thousandth of a reciprocal centimeter. This instrumentation is installed in a spacious laboratory that occupies the entire first floor of the southwest wing of the Chemistry-Boony Building. It includes a mechanically and thermally stable 40-foot-long enclosed optical bench with a variety of work stations for users.

Protein Structure Facility

The University of Iowa Protein Structure Facility, located in the Bowen Science Building, provides instrumentation and expertise to assist investigators with the preparation of pure proteins and peptides. The facility can analyze amino acid composition and sequence and can conduct high-sensitivity spectroscopic measurements, rapid kinetics measurements, and analyses of hydrodynamic properties. The facility serves a broad range of disciplines in the biological sciences, including biochemistry, molecular biology, and physiology.

Sponsored Programs

The Division of Sponsored Programs maintains a resource center that contains information on federal and nonfederal sources of funding for study and research projects by faculty and graduate students. Graduate students may inquire about funds for their advanced study in the United States or abroad.

The division also publishes "Research and Graduate Study Opportunities," a faculty/staff newsletter, that contains program and deadline information and carries a special section devoted to sources of funds for graduate study and research. The newsletter is available in departmental offices. Author inquiries about graduate opportunities are welcome at the center.

The Division of Sponsored Programs is a source of information on public and private agencies that provide funds for research and study, including pre- and post-doctoral fellowships. Staff members are available to locate potential funding agencies, assist in the development of budget and cover material, and give editorial assistance to achieve effective organization and technical correctness of applications. The staff also assists in processing an application through the University and in locating the
appropriate contact in the prospective donor's office. After an award is made, it provides monitoring and advisory services for matters other than expenditure accounting.

Center for Health Services Research
The Center for Health Services Research (CHR) is a program of research and education in health care policy and management. Faculty members from the colleges of Medicine, Dentistry, Nursing, Pharmacy, Education, Engineering, Business Administration, and Liberal Arts as well as from the University of Iowa Hospitals and Clinics.

The Graduate Program in Hospital and Health Administration accepted responsibility for the management and development of the University Center for Health Services Research in 1981.

Technology Innovation Center
The University of Iowa Technology Innovation Center (TIC) offers a range of services and facilities designed to foster the development of new business ventures—particularly those that make use of the expertise of the University faculty. The center is tailored to the needs of entrepreneurs just starting up. TIC gladly serves established companies eager to launch new endeavors.

The strength of the center lies in its ability to supply the scientific and technical capabilities of the University with the experienced needs of the business community. TIC is located on University of Iowa’s Oakdale campus. TIC provides congenial, inexpensive work space wherein collaborations between academic scientists and those in business can flourish. It offers easy access to the University’s computing facilities, faculty, research equipment, and instruments, as well as access to a battery of counseling services on crucial issues such as management, marketing, and finance.

Funded in part by a grant from the state of Iowa and the Iowa High Technology Council, the Technology Innovation Center marks the continuing commitment of the University to serve as a truly public institution.

University House
University House, established in 1977, is a place and program dedicated to the support of faculty development in interdisciplinary research. Occupying 35 offices and meeting rooms in Oakdale Hall on the University’s Oakdale Campus, University House is a place free from common distractions where faculty members can work individually or in collaboration on scholarly tasks.

Faculty members in all disciplines and institutions are eligible to request appointments at University House. University of Iowa professors enjoy the relative seclusion of University House and the opportunity to meet faculty from other disciplines. Visiting professors come to University House to gain easy access to University library facilities and to meet University scholars working in related areas of research. Collaboration from different departments and institutions at University House is a productive environment.

University House has a particular interest in promoting collaborative efforts. The Interdisciplinary Research Grant program, unique in the nation, supports scholarly projects conducted by two or more University faculty members from different disciplines. University House also frequently sponsors research and curriculum development projects of faculty members from liberal arts colleges in the Midwest, often undertaken in collaboration with University faculty members.

More informal opportunities for collaboration are offered by University House seminars and colloquium lunches in the cafeteria.

In addition to promoting faculty development in general, University House seeks to bring together University centers, institutes, consortia, and other groups into consortial interdisciplinary arrangements that foster the acquisition of external support for research and educational development.

All scholars at University House are provided with a private office and secretarial assistance and have access to personal computers, conference room, kitchen, and laundry. Also available is Oakdale Hall, a ten-story residence building on the east campus, as is the frequently used service that connects University House with the main campus. All visiting scholars enjoy full borrowing privileges at the University Libraries and access to University recreational facilities.

Video Center
The University Video Center provides high-quality video services and facilities, including those necessary to support 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 assist units in the purchase of equipment and supplies, and in production and postproduction services. Additionally, the center provides audiovisual systems design and maintains guidelines for equipment standardization.

Weeg Computing Center
The Weeg-P. Weeg Computing Center (WCC), located in the Lindquist Center, provides research and instructional computer facilities to all students, faculty, and staff at the University of Iowa.

WCC maintains systems capable of an extremely wide variety of applications. These facilities are accessible through many terminals conveniently distributed around the campus.

WCC is connected to BITNET, a higher education computer network that facilitates communication with other academic institutions in the United States. BITNET also serves as a gateway to other national and international computing networks.

In addition to terminals and general-purpose computing systems, facilities are available for producing high-quality printed and graphic output.

WCC's Personal Computing Support Center provides production demonstrations of microcomputer equipment, admissions the faculty/staff and student Microcomputer Purchase Program, and provides hardware and software support for campus microcomputer users.

Software supported by WCC covers various areas such as statistical and numerical analysis, financial modeling, text editing and formatting, graphics, and data base management.

Non-credit educational seminars and computer on general computer use are available on an ongoing basis. Specialized consultation is also provided for equipment and software selection, laboratory support, data base, and instructional design.

Detailed information on computing facilities and services can be obtained from the WCC Information Center in the Lindquist Center.

Related Units
Although not directly connected with the Office of the Vice-President for Educational Development and Research, these units have a special role in the conduct of research at the University.

Institutes
Dows Institute for Dental Research
Contact the College of Dentistry for information.

Industrial Relations Institute
See the "College of Business Administration" section of the Catalog.
Center for New Music
See "Music" in the "College of Liberal Arts" section of the Catalog.

Center for Rehabilitation Engineering
Contact the Department of Biomedical Engineering in the College of Engineering for information.

Center for the Study of Recent History of the United States
Contact the Department of History in the College of Liberal Arts for information.

Clinical Research Center
See the "College of Medicine" section of the Catalog.

Comparative Legislative Research Center
See "Political Science" in the "College of Liberal Arts" section of the Catalog.

Core Center: Diabetes and Endocrinology
See the "College of Medicine" section of the Catalog.

Digestive Disease Core Center
Contact the College of Medicine for information.

Iowa Center for Communication Study
See "Journalism and Mass Communication" in the "College of Liberal Arts" section of the Catalog.

Iowa Urban Community Research Center
See "Sociology" in the "College of Liberal Arts" section of the Catalog.

National Resource Center on Family-Based Services
Contact the School of Social Work in the College of Liberal Arts for information.

Somatics Research Center
Contact the College of Medicine for information.

Laboratories
Iowa Lakeside Laboratory
See "Iowa Lakeside Laboratory" in the "College of Liberal Arts" and "Continuing Education" sections of the Catalog.

Laboratory for Political Research
See "Political Science" in the "College of Liberal Arts" section of the Catalog.

Translating Laboratory
Contact the College of Liberal Arts for information.

Clinics
Lipid Research Clinic
Contact the College of Medicine for information.

Others
Birth Defects and Genetic Disorders Unit
Contact the College of Medicine for information.

Collaborative Studies of Affective Disorders
Contact the Department of Psychiatry in the College of Medicine for information.

Gerontology Programs
Contact the School of Social Work in the College of Liberal Arts for information.

Iowa Pesticide Hazard Assessment Program
Contact the College of Medicine for information.

Iowa Testing Programs
See the "College of Education" section of the Catalog.

Social Science Data Archive
See "Political Science" in the "College of Liberal Arts" section of the Catalog.
The University of Iowa Hospitals and Clinics make up the largest university-owned teaching hospital complex in the nation. They provide the clinical base for a major University of Iowa educational program for thousands of students in the health disciplines, including medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, occupational therapy, nursing, and social work.

University Hospitals and Clinics sponsor residency programs in which 650 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they have chosen to pursue.

There are 913 beds in the hospital complex, accommodating some 33,000 admissions annually. In addition, 135 specialty clinics accommodate another 355,000 ambulatory patient visits each year. Nearly 15,000 major surgical procedures are performed annually in the hospital's 21 major operating rooms. Approximately 3,000 infants are delivered every year.

Highly specialized health services—for example, burn care, cardiology, cardiac care, neonatal intensive care, and advanced technology for diagnosis and treatment—are easily accessible to patients who reside in communities without such resources. The hospital's transportation fleet of 16 vehicles travels more than two million passenger-miles each year. Transporting life-saving infants and surgical patients is the Air Care Emergency Helicopter Service, which has triage and access to far-flung areas. More than 70,000 miles are traveled annually by surgical teams to aid the most critically ill and injured and to transport them to the hospital for treatment. Many low-income families have to live in their living room service, but more than 500 deaths occur every year.

The hospital's clinical staff includes more than 450 faculty physicians and dentists, and the hospital staff numbers almost 600 resident and fellow physicians and dentists. The hospital's Department of Nursing is staffed by more than 1,320 professional nurses.

Other hospital staff members annually provide about 170,000 X-ray examinations and treatments. More than 1,500 laboratory tests, 1,200 physical therapy treatments, and manage more than 40,000 blood and bone marrow transplants. Recent modernization provided new intensive care, cardiology, recovery, and urgent care units. The seven-story, 815 million Boyd Tower addition went into service in 1976, providing expanded operating facilities for a variety of inpatient and outpatient procedures. It includes a 48 million Roy Carver Pavilion, housing in a year of $5 million gift from the late Muscatine industrialist, provides facilities for an emergency treatment center, physical therapy department, radiology department, and neuropsychiatric department. The hospital's clinical and faculty offices, surgery and internal medicine

The Bureau of Dental Health Education

The Bureau of Dental Health Education is sponsored jointly by the Iowa State Department of Health, which provides permanent, salaried, full-time employees, and the University, which provides space and equipment.

The bureau's primary purpose is to promote a program of dental health education and disease prevention in the public and parochial schools of the state. The senior dental hygiene students from the University conduct team programs with the public health dental hygienists of the Iowa State Department of Health. These programs include instruction on oral hygiene, good dental health practices, and nutrition as related to dental health. The bureau also supplies dental educational materials to schools to remind parents of the need for regular dental care for children.

Council on Speech Pathology and Audiology

The council coordinates clinical services in speech pathology and audiology offered within the departments of the University of Iowa Hospitals and Clinics, the Iowa City Veterans Administration Medical Center, and the Department of Speech Pathology and Audiology.

Dental Service

The dental service at The University of Iowa College of Dentistry is primarily for educational purposes. All employees of the University and all students who are registered at the University may receive dental treatment at the college and will be accorded the same opportunity for treatment as any other patient. However, the College of Dentistry is not affiliated with the University Student Health Services and does not render service under the student health hospitalization fund. Fees are established for all treatment rendered, and patients must pay cash.

Health Occupations Education

Through this program, the University collaborates with the State Department of Public Instruction to provide consulting and advisory services, educate teachers, conduct research, and develop curricula and instructional materials for health education programs in the main part of the state's area community colleges, two-year and senior high schools. The Health Occupations Education staff also assist these institutions in their increasingly important role in conducting continuing education.

Health Sciences Library

The Health Sciences Library serves the combined information and research needs of the colleges of Dentistry, Medicine, Nursing, and Pharmacy; the graduate program in Hospital and Health Administration; and the Department of Speech Pathology and Audiology. The largest of the departmental libraries in the University Library systems, the Health Sciences Library contains more than
University (State) Hygienic Laboratory

As the state of Iowa's environmental and public health laboratory, the University Hygienic Laboratory offers diagnostic, surveillance, analytic, training, and consulting services in bacteriology, virology, immunology, parasitology, industrial hygiene, toxicology, nutrition, public health, mycology, and radiological chemistry. It provides complete laboratory program support to the State Department of Health: Bureau of Laboratory: Department of Water, Air, and Waste Management: and State Geological Survey.

In the environmental area, the laboratory provides a wide variety of services related to water, wastewater, hazardous waste, and air quality monitoring and analysis; pest control and herbicide analyses; mineral and water analyses.

The Hygienic Laboratory serves as Iowa's primary laboratory for drinking water analyses, and is one of only 25 laboratories in the nation certified to perform analyses for hazardous waste sites under the USEPA Superfund Program. It is an accredited industrial hygiene laboratory and holds an interstate license for diagnostic services involved in hotel food screening and for nondirect metabolic analyses in the newsroom and for the MED virus.

Within The University of Iowa, the Hygienic Laboratory provides instruction and training in diagnostic microbiology and virology as part of regular academic courses, as well as in environmental engineering studies. In addition, the Hygienic Laboratory provides classroom and individual bench training to university personnel and to laboratory and medical personnel administering and learning specific laboratory procedures. Laboratory staff members also are available to University faculty, health care staff, and students for technical consultation.

Specialized Child Health Services

The Iowa Specialized Child Health Services is an organization that administers several state-wide health services for children. Among these are the Generic Classification Service, Coronary Disease Prevention Program, Cynics Through Program, Childhood Cancer Prevention and Treatment Program, Kinky Comprehensive Care Program for Hemophilia Patients, Statewide Perinatal Care Program, Iowa Newborn Hymen Program, Communicable Child Health Center Program, and a program of Regional Child Health Specialty Clinics.

As Regional Child Health Specialty Clinics (CSC) conducted in communities throughout the state, Iowa residents are provided with planning and evaluation services in pediatrics, orthopaedic, ophthalmology, speech pathology, audiology, physical therapy, nutrition, and clinical and educational psychology. CSCs also support the University of Iowa graduate training program in audiology and speech pathology and provides monitoring and follow-up services on special health problems. The programs include such as muscular dystrophy, mental retardation, phenylketonuria, and hemophilia.

University Hospital School

A University-supported program that deals with the prevention of developmental disabilities in infants, toddlers, and young adults. The University Hospital School serves as the locus of activity for the Division of Developmental Disabilities within the Department of Pediatrics. It is an integral part of the tertiary-level health services available through The University of Iowa Hospitals and Clinics.

The interdisciplinary team approach provides services involving the fields of medicine, dentistry, nutrition, nursing, speech and audiology, physical and occupational therapy, recreational therapy, psychology, social work, special education, and preprofessional and vocational activities.

Outpatient services provide comprehensive evaluations and follow-up of infants, children, and young adults who have problems or disabilities that affect their development. These evaluations and therapy are planned in conjunction with the diagnostic services provided to the parents and community-based service providers. The University Hospital School includes a number of special clinics: Child Development Clinic, Neurological Clinic, Neurological Rehabilitation Clinic, Newborn Infant Clinic, and Young Adult Clinic, which specializes in training staff to provide health care to infants, children, and young adults.
University Speech, Language, and Hearing Clinic

Located in the Wendell Johnston Speech and Hearing Clinic, the University's outpatient clinic evaluation and consultation for individuals with speech, language, and/or hearing problems, day clinic habilitation or rehabilitation programs for persons who come to the clinic for each service, a summer residential program for children with speech, language, hearing, and/or reading problems, and training for students in speech pathlogy and audiology. Any University student may receive most services without charge. Services include diagnostic examination, consultation, individual clinic sessions, small group sessions, and referrals to other clinics as needed.

Veterans Administration Medical Center

Medical students and residents receive much of their clinical training in this 307-bed medical center, a comprehensive health care facility in Iowa City. Veterans Administration Medical Center facilities utilized by The University of Iowa Health Center include, but are not limited to, laboratories for the transplantation program, highly specialized laboratories in nuclear medicine, and special units for the study of metabolic and gastrointestinal diseases. The Veterans Administration Medical Center is affiliated with all University of Iowa health colleges, offers unique training opportunities in clinical pharmacology, gynecology, cardiology, rheumatology, ophthalmology, and applied immunology.

The Iowa Center for the Arts

Located along the west bank of the Iowa River on The University of Iowa campus, the Iowa Center for the Arts is a major cultural resource not only for the University community, but for the people of the state and region. The center, which celebrated its 25th anniversary in 1985-86, realizes a University dream of many generations: to bring the arts together in a simple campus setting, near the geographical heart of Iowa.

The arts center facilities include many of the academic units and the University of Liberal Arts, together with the Museum of Art, the Theatre Building, Chauvel Hall, Hamer Hall, The Opera Studio, and Voxman Hall in the School of Music, and Hansen Auditorium, the center's largest performing arts showcase.

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

Financial support from many sources, both public and private, is reflected in the physical structures and educational/cultural offerings of the Iowa Center for the Arts. In addition to resources from the state of Iowa and the federal government, private contributions from growing numbers of corporate and individual patrons play an important role in the quality and diversity of the center's services to 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 served as a training force for art in America for more than half a century. The original art building dates from 1936, M.1. Major additions were added in 1950s to greatly enhance classroom and studio space and provide a new wing for sculpture.

A small gallery within the building, used primarily for the display of works by students and visiting artists, is named for artist Elise Fishwick, who in 1942 became the first recipient of the Master of Arts degree in studio art at The University of Iowa.

The school's Corboreau Gallery, located in the Old Music Building, features exhibitions of new and experimental work created at The University of Iowa by major visiting artists. The gallery presents lectures and performances that emphasize new concepts and directions in contemporary art.

Museum of Art

The University of Iowa Museum of Art provides an outstanding example of excellence in art in a diverse collection of European art, American art, and contemporary art.

In the early 1960s, Owen and Louise Eliot of Cedar Rapids offered the University their extensive collection of seventeenth- and twentieth-century paintings, prints, sculpture, and rare books. The condition that a museum would be built to house it, along with the University's existing and future acquisitions of art.

In response to this challenge, more than 2,000 individuals and private foundations contributed funds for the museum's construction cost. The museum reopened in 1980 and quickly earned recognition as one of the nation's finest university museums.

A gift from the late industrialist Roy Carver of Muscatine made possible the construction of a major addition opened in 1978. The Cole Wing, the museum has 48,000 square feet of exhibition space in 16 galleries, plus behind-the-scenes work areas essential to the functioning of a major museum. Each year thousands of visitors, including school children of all ages, visit the museum to see displays of the permanent collections and traveling exhibitions. The permanent collection of more than 1,000 works of art includes the Eliot Collection, nineteenth- and twentieth-century sculpture, drawings, photography, contemporary ceramics, and pre-Columbian art.

One of the major events is the annual exhibition of the Eliot Collection and the late Max Stanley of Muscatine. The collection of this exhibition gives the museum one of the leading university-based African art collections in the country.

The Print Study Room houses more than 2,000 prints representing major artists. The Scandinavian Print Room houses a collection of prints and drawings created by printmaker Mauricio Lasansky, emeritus professor of art at the University. Many Scandinavian prints are gifts from Sweden and Germany.

Museum special events include slide lectures by visiting artists, scholars, and collectors; Music in the Museum, a Sunday afternoon concert series; and art history travel tours to other cities and countries. Museum docents lead guided tours of the museum's exhibitions. Collections of many exhibitions are available for purchase. Friends of the Museum of Art, a private support group, sponsors receptions, performances, and an active Print and Drawing Study Club.

University Theatres

The Theatre Building houses the Department of Theatre Arts. It is the home of Studio Theatre, a 477-seat theater that is the traditional setting for many major University Theatres productions each year. A major addition to the Theatre Building has consolidated all production facilities in one location and added two studio theatres.

The Playwrights Workshop, one of the three distinguished writing workshops in the Department of English, is in joint venture with the Department of Theatre Arts.

School of Music

Established in 1971, the new home of the School of Music was designed to be functional and convenient. Its broad, curvilinear floor leads from rehearsal rooms to two offices located in the theater and to the stage of the Hancher Auditorium.

In a given year, faculty teachers and student ensemble presentations, major plays, poetry, concerts, an additional 250 to 300 musical concerts and theatrical recitals are presented by students.

Clapp Recital Hall, with its handcrafted Cavaeinon organ, seats 725 for
public concerto. The 200-seat Harper Hall is both a classroom and the setting for many recitals. The school's largest ensemble (symphony orchestra, bands, Opera Theater, and choir) performs regularly in Hancher Auditorium. The Opera Studio, opened in 1953, is the scene for smaller productions of the Opera Theater.

The school has produced opera since 1938. The Juilliard School, a national center for opera research, performed the complete cycle of collaborative operas during its first three seasons of feature productions. The scope of the program is reflected in the creation of the College of Fine Arts, particularly musical theater.

The College of Fine Arts is a major research institution in the arts, including and providing performing arts in new forms. Its Center for New Music, originally funded by the Rockefeller Foundation, is a laboratory and exhibition space for the composition and performance of contemporary music. Faculty and students of the College of Fine Arts perform in a series of concerts, lectures, and recitals, and in a series of the College of Fine Arts that explores the relationship between performance and visual art, and new media.

Two experimental music festivals provide a wide range of technical capability for creating music in the arts, including computer-generated musical sound, including computer-generated musical sound, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.

Hancher Auditorium is a regional cultural resource of the Iowa Magazine. The Iowa Magazine has been the central figure in the development of the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts, and provides opportunities for collaboration with students and faculty in the College of Fine Arts.
Old Capitol

Old Capitol is the central landmark of the University. It was the Capitol of the Territory of Iowa from 1842 until 1848 and the capitol of the state of Iowa from 1848 until 1857, when the government moved to Des Moines and gave the "old" capitol to the University as its first permanent building.

Various University offices and departments have been located in Old Capitol through the years, and it housed the University president continuously from 1849 to 1970, when the president's office was relocated to ISU Hall for the restoration of Old Capitol as a historic site. Most of the rooms were restored to the 1840s and 1850s. Two were restored to the 1920s to represent the University president's offices. Old Capitol was reopened in 1976 as a "living museum." Guided tours are conducted daily without charge.

Other Resources

Public Information and University Relations

The Office of Public Information and University Relations (OPUR) works to promote understanding of, participation in, and support of the University's mission and activities, both within the University community and among the general public. It seeks to maintain an effective information program through the use of internal and external media; it coordinates the University administration on matters involving public information and University relations; and serves as a liaison between the central administration and appropriate University, governmental, civic, and other groups.

University public information programs are implemented through the combined efforts of OPUR's individual units on campus, including those that specialize in coverage of the performing arts, the health sciences, and women's intercollegiate athletics, as well as general news, broadcast news, and photography units. These units supply news, photos, and information to print and electronic media; gather and prepare informative material for specific and general interest publications; answer requests for information; and assist writers, photographers, and broadcasters who visit the campus.

OPUR publishes the general University Calendar of Events, Parent Times for students' parents; the newsletter for faculty and staff, Ambitio; featuring forthcoming arts activities; and Spectator for alumni and friends of the University. The department also includes the Office of State Relations, serves as the executive office of the Parents Association; and provides campus housing and other services for University visitors and guests.

In addition, OPUR has management responsibility for the Department of Publications.

Publications

The Department of Publications offers services to meet pricing and publications needs of the University. It provides planning, editing, design, and printing of publications. Copy centers located around the campus provide quick, inexpensive duplicating service for University units and for students. The department also operates Campus Stores, a unit that produces and sells manuals, lab notebooks, and other instructional materials created by the faculty and not commercially available, and an on-demand fulfillment unit for local and periodic publications of the University. The department is responsible for University compliance with the printing regulations of Iowa, including provisions for obtaining competitive bids on printing purchased outside the University.

The University of Iowa Alumni Association

The principal agency through which Iowa students continue their identification with the University after they leave the campus is The University of Iowa Alumni Association. Organized in 1867, its current membership includes University graduates and former students throughout the world. Its continuing objectives are to strengthen ties between alumni and the University; to implement programs of service to alumni; to strengthen public recognition of the University as a national institution; to support the University in achieving its programs of teaching, research, and public service. The association publishes The Alumni Magazine, a bimonthly magazine for association members.

The University of Iowa Foundation

The University of Iowa Foundation was organized in 1906 to help the University obtain the greatest possible educational benefit from private giving. It raises funds for this objective through three major programs: annual giving; capital campaigns, and planned or deferred giving.

The foundation is a private, nonprofit corporation empowered to solicit and receive gifts and bequests; to accept trust funds; to hold and distribute gifts, bequests, and trusts—all for the benefit of The University of Iowa. The foundation is community at work to provide more funds for scholarships, research, development, library acquisitions, and programs and projects throughout the University.
University of Iowa Press

The University of Iowa Press was established to publish significant results of original scholarly research and significant creative work in the arts. The imprint is controlled by the University Editorial Advisory Board, composed of faculty members and students appointed by the vice-president for educational development and research.

Evaluation and Examination Service

The Evaluation and Examination Service gathers student placement and entrance test data; assists entering students in course selection. The Service also provides registration information and administration of local and national test programs including the American College Testing Program (ACT), College Level Examination Program (CLEP), Medical College Admission Test (MCAT), Graduate Record Examination (GRE) Aptitude Test, Graduate Management Admission Test (GMAT), Law School Admissions Test (LSAT), Test of English As A Foreign Language (TOEFL), and the National Teacher's Exam (NTE).

For faculty and staff, the Exam Service duplicates, scores, and analyzes classroom tests; assists in planning and processing course evaluation; conducts institutional research; prepares reports and technical bulletins pertaining to test development, grading, questionnaire design, and student profiles; and provides consultation on questionnaire development and use.
<table>
<thead>
<tr>
<th>Department</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Military Studies</td>
<td>50</td>
</tr>
<tr>
<td>African-American World Studies</td>
<td>51</td>
</tr>
<tr>
<td>African Studies Program</td>
<td>54</td>
</tr>
<tr>
<td>Aging Studies Program</td>
<td>55</td>
</tr>
<tr>
<td>American Studies Program</td>
<td>56</td>
</tr>
<tr>
<td>Anthropology</td>
<td>58</td>
</tr>
<tr>
<td>Art and Art History</td>
<td>61</td>
</tr>
<tr>
<td>Asian Languages and Literature</td>
<td>67</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>71</td>
</tr>
<tr>
<td>Biology</td>
<td>72</td>
</tr>
<tr>
<td>Botany</td>
<td>76</td>
</tr>
<tr>
<td>Chemistry</td>
<td>80</td>
</tr>
<tr>
<td>Classics</td>
<td>82</td>
</tr>
<tr>
<td>Communication Studies</td>
<td>85</td>
</tr>
<tr>
<td>Comparative Literature</td>
<td>90</td>
</tr>
<tr>
<td>Economics</td>
<td>92</td>
</tr>
<tr>
<td>English</td>
<td>96</td>
</tr>
<tr>
<td>Exercise Science and Physical Education</td>
<td>102</td>
</tr>
<tr>
<td>French and Italian</td>
<td>107</td>
</tr>
<tr>
<td>Genetics</td>
<td>111</td>
</tr>
<tr>
<td>Geography</td>
<td>112</td>
</tr>
<tr>
<td>Geology</td>
<td>118</td>
</tr>
<tr>
<td>German</td>
<td>123</td>
</tr>
<tr>
<td>Global Studies</td>
<td>126</td>
</tr>
<tr>
<td>History</td>
<td>128</td>
</tr>
<tr>
<td>Home Economics</td>
<td>133</td>
</tr>
<tr>
<td>Iowa Lakeside Laboratory</td>
<td>135</td>
</tr>
<tr>
<td>Journalism and Mass</td>
<td>140</td>
</tr>
<tr>
<td>Communication</td>
<td>146</td>
</tr>
<tr>
<td>Latin American Studies</td>
<td>145</td>
</tr>
<tr>
<td>Library and Information Science</td>
<td>146</td>
</tr>
<tr>
<td>Linguistics</td>
<td>151</td>
</tr>
<tr>
<td>Literature, Science, and the Arts</td>
<td>153</td>
</tr>
<tr>
<td>Division of Mathematical Sciences</td>
<td>154</td>
</tr>
<tr>
<td>Sciences</td>
<td>155</td>
</tr>
<tr>
<td>Applied Mathematical Sciences</td>
<td>155</td>
</tr>
<tr>
<td>Computer Science</td>
<td>156</td>
</tr>
<tr>
<td>Mathematics</td>
<td>159</td>
</tr>
<tr>
<td>Statistics and Actuarial Science</td>
<td>163</td>
</tr>
<tr>
<td>Microbiology</td>
<td>167</td>
</tr>
<tr>
<td>Military Science (Army ROTC)</td>
<td>167</td>
</tr>
<tr>
<td>Museum Training</td>
<td>168</td>
</tr>
<tr>
<td>Music</td>
<td>169</td>
</tr>
<tr>
<td>Philosophy</td>
<td>176</td>
</tr>
<tr>
<td>Physical Education and Dance</td>
<td>176</td>
</tr>
<tr>
<td>Physics and Astronomy</td>
<td>183</td>
</tr>
<tr>
<td>Political Science</td>
<td>188</td>
</tr>
<tr>
<td>Psychology</td>
<td>192</td>
</tr>
<tr>
<td>Recreation Education</td>
<td>196</td>
</tr>
<tr>
<td>Religion</td>
<td>200</td>
</tr>
<tr>
<td>Rhetoric Program</td>
<td>204</td>
</tr>
<tr>
<td>Russian</td>
<td>204</td>
</tr>
<tr>
<td>Science Education</td>
<td>206</td>
</tr>
<tr>
<td>Social Studies Education</td>
<td>209</td>
</tr>
<tr>
<td>Social Work</td>
<td>211</td>
</tr>
<tr>
<td>Sociology</td>
<td>215</td>
</tr>
<tr>
<td>Spanish and Portuguese</td>
<td>219</td>
</tr>
</tbody>
</table>

Speech Pathology and Audiology: 225
Theatre Arts: 230
Transportation Studies: 233
Urban and Regional Planning: 235
Women's Studies: 236

Schaeffer Hall

Dean: Gerard Lenczowski
Asst. Dean, areas of academic programs: James D. Lindberg
Assist. Dean, areas of development and research: George D. Cline
Assistant Dean, area of faculty: Julia N. Davis
Assistant Dean of Academic Program: Mirian Gerland
Director of honors: Irwin P. Levin
The educational programs offered in the College of Liberal Arts provide the necessary foundation for the specialized education or training that many undergraduates pursue in adulthood. They provide the prerequisites for professional study in medicine, nursing, and pharmacy, and in business, law, and education, and they form the basis for graduate work. These programs also provide a general education, which by itself prepares students for a broad range of occupations.

Liberal education is general in the breadth of intellectual disciplines it involves, but it is not superficial. The College of Liberal Arts offers 55 specific degree programs, each requiring extensive study in a particular academic discipline or in a set of related disciplines. 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 selects, the curriculum of the college exposes all students to work in mathematics, in logic or quantitative reasoning, and in a foreign language, and to a course in reading, speaking, and writing. Further, all students must become acquainted with the study of history, the natural sciences, the social sciences, and the humanities, as well as with civilizations and cultures remote in time or space.

These General Education Requirements are designed to enable students to understand the physical world in which they live, the social organization of that world, and the values of the civilizations they have inherited. The discoveries of scholars and the creative work of artists and writers in this century have greatly expanded our knowledge of nature, technology, and the possibilities and have heightened our aesthetic sensibilities. The complexity of the modern world is matched by our increased ability to understand it. The understanding, however, depends more than ever upon a generous education.

It is the mission of the College of Liberal Arts to make that general education available, and to guide students through the many options they have in obtaining it. A Liberal education compensates for the narrowing that is the price of specialization. It develops the capacity to resolve significant questions, to find answers, to reject dogma, to be free of superstition, and to adapt to change.

College Organization

The internal organization of the College of Liberal Arts reflects its multifaceted character. The college is composed of units of various names: divisions, schools, departments, programs, and nondepartmental units. There are two divisions in the college. The Division of Fine Arts includes the School of Art and Art History, the School of Music, the Department of Communication Studies, and the Department of Theatre Arts. The Division of Mathematical Sciences includes the Departments of Computer Science, Mathematics, and Statistics and Information Science. Within the college there are seven schools.

degrees Offered

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

Major Fields

The college offers degrees as indicated in the following major fields:

- American studies--B.A.
- Anthropology--B.A.
- Astronomy--B.A., B.S.
- Biochemistry--B.A., B.S.
- Botany--B.A., B.S.
- Chemistry--B.A., B.S.
- Classics--B.A.
- Communication studies--B.A.
- Comparative literature--B.A.
- Computer science--B.A., B.S.
- Dance--B.A.
- Dental hygiene--B.S.
- Early childhood education--B.A., B.S.
- Economics--B.A., B.S.
- Elementary education--B.A., B.S.
- English--B.A.
- Exercise science--B.S.
- French--B.A.
- Geography--B.A., B.S.
- German--B.A.
- German--B.S.
Greekg—B.A.
Health occupations education—B.A., B.S.
History—B.A.
Home economics—B.A., B.S.
Italian—B.A.
Journalism and mass communication—B.A., B.S.
Latin—B.A.
Linguistics—B.A.
Literature, science, and the arts—B.A.
Mathematical sciences—B.A., B.S.
Microbiology—B.S.
Music—B.A., B.M.
Philosophy—B.A.
Physical education—B.A., B.S.
Physics—B.A., B.S.
Political science—B.A., B.S.
Portuguese—B.A.
Psychology—B.A., B.S.
Recreation education—B.S.
Religion—B.A.
Russian—B.A.
Science education—B.A., B.S.
Social studies—B.A.
Social work—B.A.
Sociology—B.A., B.S.
Spanish—B.A.
Special education—B.A., B.S.
Speech and hearing sciences—B.A., B.S.
Statistics—B.S.
Theatre arts—B.A.
Theatre, B.G.S. and B.L.S. degrees are awarded with no major designation.

Majors in Education and the Teacher Education Programs

Students may indicate a major in one of the fields of education at the time of admission or may change their majors to one of these fields any time after enrollment. In order to be allowed to enroll in the foundation (major) courses in education, the student must be admitted to the Teacher Education Program (TEP).

To be admitted to the TEP, a student must have attained sophomore standing (28 semester hours) and must have earned a total cumulative grade-point average of at least 2.3. Transfer students who meet these standards may be admitted to the TEP upon admission to the University. In order to remain in the TEP, a student must maintain a 2.3 total cumulative grade-point average.

Application forms for admission to the TEP may be obtained in the Office of Student Services in the College of Education. Students admitted will be notified in writing. For more information, see the "College of Education" section of the Catalog.

Double Majors

Students may meet the major requirements in more than one department, and, if the departments award the same major, the student may earn a single bachelor's degree with two or more majors (for example, a B.A. in history and English or a B.S. in psychology and business). For further information, see "Double Majors" under "Requirements for the Major," below.

Specializations Within Degree Programs

Many degree-granting units in the college offer specializations. Some of these are formal options within degree programs. For example, broadcasting and film is offered in the Department of Communication Studies, and apparel and textile merchandising and design is offered in the Department of Home Economics Specializations in Chinese, Hindi, Japanese, or Swahili are available to students seeking a B.A. in Asian Languages and Literatures. The School of Art and Art History and the School of Music have many different tracks leading to bachelor's degrees: studio emphasis, art history emphasis, and art education: music education, music history, music therapy, composition theory, and performance. There are only a few examples of the many options within degree programs.

Other specializations can be developed with combinations of courses taken from several areas—for example, a specialization in public relations and advertising with courses taken in the Department of Communication Studies and the School of Journalism and Mass Communication; photography and graphic design specialties with courses taken in the School of Art and Art History and the School of Journalism and Mass Communication; or a specialization in management with courses taken in various social sciences departments.

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

Interdisciplinary Opportunities

A number of interdisciplinary programs in the College of Liberal Arts offer majors, specializations within degrees, minors, or certificates. These programs include African Studies (certificate), Afro-American Studies (minor or specialization within the B.A. in American Studies); Aging Studies (minor or certificate); Global Studies (minor, certificate, or honors interdisciplinary major); Latin American Studies (minor or certificate); Literature, Science, and the Arts (B.A.); and Women's Studies (minor).

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

Honors Interdisciplinary Major

Honors students may pursue an individually planned major in an area of study that draws on courses from two or more departments, as approved by the honors advisors from the departments concerned and the director of honors. The major must consist of at least 36 semester hours, including at least 6 semester hours of honors seminars or honors courses in departments other than those for which the seminar was developed. The degree "with interdisciplinary honors." The program of study must be submitted for approval at least one year before the student expects to graduate.

In recent years baccalaureate degrees have been conferred with interdisciplinary honors in the following areas: correctional studies, global studies, humanities, international affairs, international development studies, literature, history, and philosophy; media studies; and methodological social sciences.

Early Admission to Medicine or Dentistry

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

Students must meet certain requirements to be eligible for admission to the College of Liberal Arts after early admission to The University of Iowa College of Medicine or College of Dentistry. Prior to enrolling in the professional college, a student must have earned at least 36 semester hours; fulfilled all General Education Requirements; met the requirements for a major; and satisfied the residence requirement of the College of Liberal Arts.

After the student successfully completes the first year of medical or dental school, the College of Liberal Arts, on verification of an official transcript, will award a student 36 semester hours of ungraded elective credit that may be applied toward a baccalaureate degree. However, no more than 36 semester hours earned in the professional college after the student transfers from the College of Liberal Arts may be counted as elective credit toward a degree from the College of Liberal Arts.

Early Admission to Other Medical or Dental Schools

If students accept early admission to an accredited medical or dental college in the United States other than The University of Iowa, they should apply to the graduation analysis division of the Office of the Registrar during their final semester in residence at The University of Iowa for permission to apply the necessary credit toward the required baccalaureate degree. Students majoring in courses in the College of Liberal Arts must meet the requirements given above. Students majoring in other medical or dental schools, the registrar will inform students how to apply for a baccalaureate degree from Iowa.

Combined Degree Program: Liberal Arts and Engineering

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the colleges of Engineering and Liberal Arts. To enter this program, a student must be eligible for admission to the College of Engineering but may begin the program in either the College of Liberal Arts or the College of Engineering. Students who enter this program will be advised by the assistant to the dean of the College of Engineering and by an associate dean of the College of Liberal Arts. A plan of study must be developed and approved by the advisor from both colleges. It is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the time required to complete the combined degree program. Students in the combined program normally can meet the baccalaureate degree requirements of both colleges in about five academic years. However, the exact length of time to complete the combined degree program will be determined by the major area of study selected in liberal arts and engineering.

Students selecting this program will be required to complete the General Education Requirements, the requirements for the major, and the residence requirement, in the College of Liberal Arts. The specific engineering courses taken by the student will vary according to the engineering specialty selected. Since the courses in science, mathematics, and the social/humanities are accepted regularly for credit by both colleges, the student is in many cases, satisfying the requirements for two colleges by taking a particular course.

Two or More Bachelor's Degrees

Students who wish to earn an additional bachelor's degree must be readmitted to the college and must complete at least 30 additional consecutive hours of study in residence in the college beyond the first degree. Holders of the B.A. and B. S. degrees will be considered to have satisfied all the college requirements for graduation except the foreign language requirement. At least 18 credit hours of other degree must meet college course requirements. Students with B.B.A. or B.S. degrees from other colleges also must satisfy the residence requirement for a bachelor's degree at Iowa.


Total Hours Earned

Students who enter as beginning freshmen must earn a total of 124 semester hours of credit. The number of required to transfer a student is indicated on the student's admission statement.

Satisfactory Grade-Point Average

The general requirements for graduation include the element of quality as well as quantity of work completed. Candidates for the B.A., B.S., B.F.A., and B.M. degrees must satisfy the college's minimum grade-point average of C (2.0) in all college work attempted, all work undertaken at The University of Iowa, and all work attempted in the major field, included 2.8 in all University of Iowa major work.

B.G.S. students select the qualitative requirements for graduation by earning a grade-point average of at least 2.8 in all college work attempted, all work undertaken at The University of Iowa, and all advanced courses attempted.

Residence

Students must meet the residence requirement. This may be met by earning the final 30 consecutive semester hours in residence, or four-five of the last 60 semester hours in residence, or

At least 40 total of 60 semester hours in residence.

Nonresident instruction includes course work at other colleges and universities, course work earned while enrolled 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

Students who enrol at The University of Iowa for the first time after May 1962 must complete the following General Education Requirements for the B.A., B.S., B.F.A., and B.M. degrees. Students who enrol at The University of Iowa for the first time after July 1960 must complete the following General Education Requirements for the B.G.S. degree.

Rerere: one or two courses (4-8 s.h.); Mathematics: two years of high school algebra and one year of high school geometry, or satisfactory test scores, or courses at The University of Iowa (0-9 s.h.); Physical Education: four courses (4 s.h.); Foreign Language: for the B.A. degree, the equivalent of four semesters (four years in high school) of a foreign language (0-8 s.h.); for the B.S., B.G.S., B.F.A., and B.M. degrees, the equivalent of two semesters (two years in high school) of a foreign language (0-8 s.h.); Foreign Civilization and Culture: one approved course (3-4 s.h.); Historical Perspectives: two approved courses (6 s.h.).
Humanities: 80-1 The Interpretation of Literature and two approved courses (9 h.c.)
Natural Sciences: two approved courses, one of which must include a laboratory component (5 h.c.)
Quantitative or Formal Reasoning: one approved course (4-6 h.c.)
Social Sciences: two approved courses (9 h.c.)

Old Core/Skills Requirements
Students who registered for the first time in Iowa for any session prior to June 1983 and who graduate by May 1988 may satisfy either the General Education Requirements or the old course requirements for graduation. The old course requirements include basic skills (rhetoric, mathematics, and physical education skills), core courses (historical-cultural, literature, natural science, and social science), and foreign language. Students who are eligible to graduate under the old course requirements must file a request in writing to the Graduation Analysis section of the Registrar's Office. Students seeking additional information about the old course requirements should contact the Liberal Arts Office at Academic Programs.

The United Program
The United Program (UP) is a four-semester, six-level integrated general education course for a small group of students who choose the program when they enter. 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 UP take the same courses in a given semester. Students may leave the program at any time and satisfy the General Education Requirements in other ways, but only freshmen may enter UP.

Rhetoric
All students must register for their assigned rhetoric course in their first semester and continue to enroll in rhetoric courses until the requirement is completed. Once enrolled in a rhetoric course, a student may not drop the course. No more than 8 semester hours of credit earned in rhetoric courses may be counted toward a bachelor's degree.

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

The rhetoric requirement may be completed eight ways:

By passing 101-1 and 101-2 Rhetoric for 8 semester hours.

By passing 103 Rhetoric for 4 semester hours.

By passing the speech test and 101-4 Rhetoric for 2 semester hours.

By passing the writing test and 36C:25 Principles of Speech Communication for 2 semester hours, or

By passing both the speech and writing tests.

Placement and exemption tests are given during the first week of classes for students registered in rhetoric courses. Exemption from part or all of the requirement may be awarded on the basis of these tests. (Academic credit will not be given.)

Mathematics
The General Education Requirement in mathematics may be satisfied through high school courses, satisfactory test scores, courses at The University of Iowa, or transfer courses, as specified below. This requirement should be met by the end of the student's first year in residence or during the first 30 semester hours at The University of Iowa.

High School Courses
Successful completion of two years of high school algebra and one year of high school geometry (or their equivalent in college preparatory mathematics) satisfies the mathematics requirement.

Satisfactory Test Scores
ACT: A score of 26 or above on the mathematics subscore of the ACT general test battery satisfies the mathematics requirement.

MPT: A passing score on the University of Iowa Mathematics Proficiency Test (MPT) satisfies the mathematics requirement. Scores from this test also are used to recommend placement in mathematics courses at Iowa. (No academic credit is awarded for passing the MPT.)

Courses at The University of Iowa
Successful completion of the required mathematics course(s) at The University of Iowa satisfies the mathematics requirement. These courses include:

22M:1 Basic Algebra I
22M:2 Basic Algebra II
22M:3 Basic Geometry

Based on a planned schedule key to the student's size of first enrollment at The University of Iowa, grades received in these courses will be counted in the grade-point average, but the hours awarded will not be included in hours earned toward graduation.

The following schedule specifies which courses students may be required to complete and whether or not credit earned in these courses will count toward graduation.

Date of first enrollment at The University of Iowa:

Prior to Fall 1985: 22M:1; credit will count toward graduation.

Fall 1985: 22M:1; credit will not count toward graduation.

Fall 1986: 22M:1, 22M:2; credit will not count toward graduation.

Fall 1987: 22M:1, 22M:2, 22M:3; credit will not count toward graduation.

Students will be required to complete one, two, or three courses, depending upon their high school mathematics background and scores on the MPT.

The mathematics requirement also may be satisfied by successful completion of courses more advanced than 22M:2 and 22M:3 in the Division of Mathematical Sciences.

Transfer Courses
Students who have not otherwise fulfilled the mathematics requirement will have met the requirement if they have passed a sequence of college-level mathematics courses at other schools that are comparable to the courses used for this purpose at Iowa. Acceptance of courses will be based on an evaluation of content and level of difficulty. Transfer credit awarded in courses equivalent to 22M:1, 22M:2, and 22M:3 will not count toward graduation according to the following schedule:

Courses equivalent to 22M:1 taken after summer 1986:

Courses equivalent to 22M:2 taken after summer 1986:

Courses equivalent to 22M:3 taken after summer 1987:

Transfer students who receive A.A. degrees from Iowa community colleges participating in the Iowa Community College/Regents Agreement (IC2RA) are considered to have fulfilled the mathematics requirement.

Physical Education
All students must complete four one-semester courses in physical education skills under the satisfactory-/nonsatisfactory grading procedure.

NOTE: Because of extensive remodeling of the Field House, the physical education skills requirement was temporarily reduced from four to three semester hours. The reduction applies to all new freshmen and transfer students admitted for summer session 1983, first or second semester 1983-84, summer session 1984, and first semester 1984-85.

Only courses 104:1 and 49:2, offered by the physical education skills program, may be used to satisfy the requirement. Courses under these names have activity or sports titles and levels of proficiency. If a student repeats the same course or takes a more elementary one, the registrar will assess a penalty for either duplication or
regulation. In removing incompletes or using the second-grade-only option, the student must complete or retake the same activity or sequence at the same level.

Proficiency Examinations
Up to 4 semester hours of ungraded credit or exemption may be awarded for successful completion of comprehensive tests in specific physical education activities or sports. A maximum of 4 semester hours of credit by examination in physical education courses will be counted toward the total required for graduation. Credit from these tests may not be used at elective credit toward a degree.

Transfer Students
Transfer students may satisfy this requirement by:
- transferring 4 semester hours of college physical education course work (credit, sports, and activities)
- by achieving junior standing (56 semester hours) prior to admission to The University of Iowa
- by transferring fewer than 4 semester hours of college physical education and by earning enough credits in physical education at a new institution of higher education to make the total of 4 semester hours from all colleges.

Oiler Students
Students who have passed their twenty-third birthday prior to the first day of their graduation quarter are exempted from the physical education requirement. Students who have passed their twenty-eighth birthday prior to the day of their graduation quarter are excused from the physical education requirement.

Veterans
Veterans may be exempt from this requirement by presenting to the registrar clear evidence of having completed a basic training program in a branch of the armed forces.

Foreign Language
Four semesters of a foreign language are required for the B.S. degree and two semesters for the B.S.F.A., B.G.S., and B.M. degrees. The requirement may be satisfied by the methods described below.

Four foreign languages offered at The University of Iowa to fulfill the requirement include Chinese, Dutch, French, German, Greek, Hindi, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, and Spanish. In some cases, foreign students may use English to satisfy the foreign language requirement.

High School Courses
Successful completion of four sequential years of study of the world language in high school meets the B.A. degree requirement. Two sequential years in high school meet the B.S., B.F.A., B.G.S., and B.M. degree requirement. Students must complete the fourth year of high school language for the B.A. degree and the second year for the B.S., B.F.A., B.G.S., and B.M. degrees.

College Courses
Successful completion of four sequential semesters of the same language in college, or the equivalent, meets the B.A. degree requirement. The completion of two additional semesters, or the equivalent, meets the B.S., B.F.A., B.G.S., and B.M. degree requirement. Students must complete the fourth semester of college language for the B.A. degree and the second semester for the B.S., B.F.A., B.G.S., and B.M. degrees.

Combinations of High School and College Courses in the Same Foreign Language
One year of high school study in a foreign language is equivalent to one semester of college work. Successful completion of sequential years of one language in high school followed by sequential semesters of the same language in college meets the requirement. Students must complete the fourth semester of college language in sequence for the B.A. degree and the second semester in sequence for the B.S., B.F.A., B.G.S., and B.M. degrees.

Students may receive credit for college courses that duplicate high school work in a foreign language.

Proficiency Examinations
Satisfactory performance on an achievement examination measuring proficiency equivalent to that usually attained after four semesters of college study meets the B.A. degree requirement. Proficiency equivalent to that usually attained after two semesters of college study meets the B.S., B.F.A., B.G.S., and B.M. degree requirement. (Academic credit will be given.) Students who are not fluent in a foreign language usually need not take the University of Iowa exams to meet this proficiency requirement.

Sequences of Courses that Satisfy the Foreign Language Requirement

B.A. Degree
Chinese-35:8-39
Dutch-130:11-130:12-130:21-130:22
French-91:1-92:1-91:100, plus 91:2 or 91:5 or 91:105 or 91:5-91:5 or 91:105-9-106
Greek-141:1-141:2-141:11-141:12
Russian-41:3-41:2-41:3-41:4

B.S., B.F.A., B.G.S., and B.M. Degrees
Chinese-39:32 or 39:8
Dutch-130:11-130:12
French-91:1-92:1 or 91:00
German-131:13-132:13 or 131:13 or 132:13 or 13:16
Greek-141:1
Hindi-39:31-39:32
Italian-181:1 or 181:05
Latin-201:1 or 202:1 or 202:17
Portuguese-38:1-38:2 or 38:100
Russian-41:3-41:2 or 41:05-41:16
Spanish-39:32 or 39:5

French and Italian Language and Culture
Students must complete one 3- or 4-semester-hour course from the list below. Courses used to satisfy this requirement may also be approved to satisfy, in part, the historical perspectives, humanities, or social sciences requirement.

HS Western Art and Culture
Before 1489
1614 Western Art and Culture After 1489
1615 Islamic Art and Civilization
1616 Introduction to Asian Art
77:104 Education, Politics, and Culture of Modern Southeast Asia
86:14 Literature of the African Peoples
91:07 French Cinema and Culture
13:17 German Heroic and Erotic Literature of the Middle Ages
13:01 Introduction to Modern German Literature
13:02 Introduction to Modern German Language History
13:10 German Cultural History
3 s.h.
20-113 Religion and the Occult in Antiquity 3 s.h.
20-114 Music of the Renaissance 3 s.h.
20-115 Music of the Baroque 3 s.h.
20-116 World Music 3 s.h.
20-117 World Music II 3 s.h.
20-118 Introduction to Ethics 3 s.h.
20-40 Art of Dance in Contemporary Society 3 s.h.
22-102 Religion and Society 3 s.h.
22-103 Quest for Human Destiny 3 s.h.
22-104 Introduction to Religious Studies 3 s.h.
22-105 Religious Thematics of the West 3 s.h.
22-107 Use of the Old Testament in Verse and Drama 3 s.h.
22-111 Religion and Women 3 s.h.
22-114 Religion and the Occult in Antiquity 3 s.h.
23-121 The Good Society 3 s.h.
23-154 Human Nature and the Impact of Science 3 s.h.
23-161 Form and Milieu in the Arts 3 s.h.
23-170 Opera as Drama 3 s.h.
23-300 Contemporary Latin American Narrative 3 s.h.
32-65 I Survey of Film 3 s.h.
33-146 European Film History 3 s.h.
33-148 National Cinema 3 s.h.
39-19 Asian Humanities 3 s.h.
39-29 Asian Humanities 3 s.h.
39-50 Non-Western Literary Traditions 3 s.h.
41-1 American Values 3 s.h.
41-4 Major Texts of World Literature I 3 s.h.
41-41 Major Texts of World Literature II 3 s.h.
46-50 Non-Western Literary Traditions 3 s.h.
46-79 Art in Theatre 3 s.h.
48-101 Greek Drama in Translation 3 s.h.
129-108 Literatures of the African Diaspora 3 s.h.
12941 Introduction to Afro-American Culture 3 s.h.
11-111 Religion and Women 3 s.h.

Natural Sciences
Students must complete at least 7 semester hours from the courses listed below. At least one course taken to fulfill this requirement must include a laboratory component. Courses with laboratory components are indicated by "(Lab)."

2:1 Introduction to Botany (Lab) 4 s.h.
2:10 Plant Diversity (Lab) 4 s.h.
2:13 Ecology (Lab) 4 s.h.
2:15 Technological Society (Lab) 4 s.h.
2:17 General Chemistry I (Lab) 4 s.h.
2:18 General Chemistry II (Lab) 4 s.h.
2:19 Principles of Chemistry I (Lab) 4 s.h.
2:14 Principles of Chemistry I (Lab) 3 s.h.
2:16 Principles of Chemistry I (Lab) 3 s.h.
2:21 Human Biology 3 s.h.
2:21 Human Biology (Lab) 3 s.h.
2:22 Ecology and Evolution 3 s.h.
2:25 Introduction to Geology (Lab) 4 s.h.
2:26 Evolution of the Earth (Lab) 4 s.h.
2:23 Earth History and Resources (Lab) 4 s.h.
2:24 Introduction to Environmental Geology (Lab) 3 s.h.
2:25 Chemistry and Physics of the Environment 3 s.h.
2:27 General Physics 3 s.h.
2:28 Basic Physics 3 s.h.
2:29 Basic Physics (Lab) 4 s.h.
2:31 College Physics (Lab) 4 s.h.
2:32 College Physics (Lab) 4 s.h.
2:37 Introductory Physics I (Lab) 4 s.h.
2:38 Introductory Physics II (Lab) 4 s.h.
2:39 Modern Astronomy 3 s.h.
2:40 Modern Astronomy 3 s.h.
2:41 General Astronomy (Lab) 4 s.h.
2:42 General Astronomy (Lab) 4 s.h.
2:43 Principles of Animal Behavior (Lab) 4 s.h.
2:44 Principles of Animal Behavior (Lab) 4 s.h.
2:45 Biology of the Brain 3 s.h.
2:46 Introduction to Animal and Human Behavior 3 s.h.
2:47 Human Genetics 3 s.h.
2:48 Genetics and Evolution 3 s.h.
2:49 Introduction to Physical Geography (Lab) 3 s.h.
917 Fundamentals of Science (Lab) 4 s.h.
111-13 Human Origins 3 s.h.

Quantitative or Formal Reasoning
The requirement may be satisfied by completing any one of the courses listed below, or completing a more advanced course that has one of the listed courses as a prerequisite.

71-26 Elementary Statistics and Inference 3 s.h.
22M-101 Finite Mathematics 4 s.h.
22M-102 Brief Calculus 4 s.h.
22M-103 Mathematics for the Biological Sciences 4 s.h.
22M-161 Calculus for the Biological Sciences 4 s.h.
22M-17 Quantitative Methods I 4 s.h.
22M-18 Elementary Functions 3 s.h.
22M-23 Calculus I 4 s.h.
22M-24 Engineering Calculus I 4 s.h.
22M-45 Accelerated Calculus I 4 s.h.
22M-53 Statistics and Probability 3 s.h.
22M-54 Statistical Inference 3 s.h.
22M-58 Quantitative Methods II 3 s.h.
22M-250 Elementary Statistics and Inference 3 s.h.
22M-26 Principles of Reasoning 3 s.h.
22M-27 Theory and Practice of Argument 3 s.h.
22M-33 Language and Formal Reasoning 3 s.h.

This requirement should be met by the end of the student’s second year in residence or during the first 40 semester hours of study at The University of Iowa. Students normally should have satisfied the mathematics requirement before beginning to meet this one.

Social Sciences
Students must complete a minimum of 6 semester hours from the courses listed below.

3:15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
60-1 Principles of Microeconomics (taken for 3 s. summer session only) 4 s.h.
60-2 Principles of Macroeconomics (taken for 3 s. summer session only) 4 s.h.
70-1 Research into the Problems of Education 3 s.h.
70-40 Introduction to Affective-Social Science 3 s.h.
70-50 Introduction to Affective-Social Science 3 s.h.
70-70 Introduction to Affective-Social Science 3 s.h.
70-101 Introduction to American Political Science 3 s.h.
70-102 Introduction to Political Science 3 s.h.
70-103 Introduction to Political Science 3 s.h.
70-104 Introduction to Comparative Politics 3 s.h.
70-105 Introduction to Political Thought 3 s.h.
70-106 Introduction to World Politics 3 s.h.
70-110 The American Political System 3 s.h.
70-111 Elementary Psychology 3 s.h.
70-112 General Psychology (either 111 or 312 may be used) 3 s.h.
70-113 Introduction to Clinical Psychology 3 s.h.
70-114 Introduction to Child Psychology 3 s.h.
70-115 Introduction to Mental Health 3 s.h.
70-117 Introduction to Comparative Psychology 3 s.h.
70-118 Introduction to Sociological Theory 3 s.h.
70-119 Introduction to Sociology: Problems 3 s.h.
70-120 Introduction to Media and Mass Society 3 s.h.
70-121 Communication Theory in Everyday Life 3 s.h.
70-122 Introduction to Human Geography 3 s.h.
70-124 Introduction to Social Geography 3 s.h.
70-125 Contemporary Environmental Issues 3 s.h.
70-126 Introduction to Economics 3 s.h.
70-127 Introduction to Social Anthropology 3 s.h.
70-128 International Relations 3 s.h.
70-129 Introduction to African Studies 3 s.h.
70-130 Introduction to African Studies 3 s.h.
70-131 Introduction to Afro-American Studies 3 s.h.
70-132 Introduction to Afro-American Studies 3 s.h.
General Education Restrictions and Waivers

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

No More Than Three Courses from One Department: Students may use no more than three courses offered by any one department to satisfy the historical perspectives and the humanities requirements together.

Courses from the Major Department: No course from a student's major department may be used to satisfy the General Education Requirements except the mathematics requirement, the foreign language requirement, the physical education requirement, or the foreign civilization and culture requirement.

Students who have fulfilled the requirements for a double major are exempt from this restriction.

Departmental Waivers of General Education Requirements: Each department at the college may waive up to 4 semester hours of General Education Requirements for its B.A. students and up to 7 semester hours for its B.S., B.F.A., and B.M. students in the area closest to or most relevant to its program. A current list of all approved waivers is available in the Liberal Arts Office of Academic Programs.

Placement and Exemption Examinations for General Education

Satisfactory performance on tests administered at the college may lead to full or partial exemption from the rhetoric, mathematics, or foreign language requirement (or any combination of these requirements) is not awarded). Exception and up to 4 semester hours for each area tested is awarded for satisfactory performance on comprehensive tests in physical education skills.

Exemptions and/or academic credit may be awarded for satisfactory scores on examinations administered at the Advanced Placement Program (AP) and the College Examination Program (CLEP) in the following general education areas: rhetoric, foreign language, historical perspectives, humanities, natural sciences, quantitative or formal reasoning, and social sciences. For specific information about the application of credit for AP and CLEP, contact the Liberal Arts Office of Academic Programs or the Examination and Placement Services.

General Education Requirements and Transfer Students

Transfer Students Without Degrees

Transfer students who have taken courses elsewhere that are similar to those approved for general education at Iowa may count these courses toward the general education requirements. Acceptance of these courses will be shown on the student's admission statement. If transfer students bring to Iowa fewer than enough hours to meet a General Education Requirement, they may use only approved courses to complete the remainder of the requirement.

Transfer Students with A.A. Degrees

Students who have earned an A.A. degree from Iowa community college participating in the Iowa Community College Regents Articulation Agreement will be considered to have met all the General Education Requirements except foreign language. The student's program of study for which the A.A. degree was awarded must include a minimum of 60 semester hours of credit acceptable for transfer, the completion of an agreed-upon group of courses at the community college, and a grade-point average of at least 2.0. A yearly review is conducted to assess whether students are meeting the stipulations of this agreement.

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 with their advisors to outline plans for a major.

Restrictions

Courses that are to be applied toward the major may not be taken pass-nonpass. Courses required for the major in cognate or related areas may be taken pass-nonpass, if available, at the discretion of the major department.

No more than 30 semester hours of credit may be earned in one department of study and applied toward a B.A. or B.S. degree from the College of Liberal Arts. No more than 62 semester hours in one department may be applied toward a B.F.A. Special considerations for double majors are described below.

A maximum of 16 semester hours of credit by examination may be awarded in the major field.

Double Majors

Students may meet the major requirements in more than one department and, if the departments award the same degree, the student may earn a single bachelor's degree with two or more majors. Double majors may not be earned unless both departments or programs are in the College of Liberal Arts. Students who have fulfilled the requirements for a double major are exempt from the restriction that no course from the student's major department may be used to satisfy the General Education Requirements.

When a single department offers a degree in more than one subject area (e.g. physics and astronomy or French and Portuguese), students may earn a double major, a major and a minor, or two minors (receiving 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 (computer science, mathematical sciences, and statistics and actuarial science) must earn a minimum of 56 semester hours in courses taken outside the College of Education.

Students seeking double majors in the areas of early childhood, elementary, health occupations, and special education must earn a minimum of 56 semester hours in courses taken outside the College of Education.

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 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 interest from the major.

Requirements

The requirements outlined below are the minimum requirements for a minor in the College of Liberal Arts. Departmental requirements may be more specific and may include recommended courses, a greater number of semester hours, and prerequisites. Requirements for specific minors are described in the departmental sections of the Catalog. For departments that do not specify the requirements for a minor, students should consult with the department or the Liberal Arts Office of Academic Programs.

A minimum of 15 semester hours must be taken in the minor area.

At least 12 of the 15 semester hours must be taken at the University of Iowa in advanced courses acceptable to the academic unit granting the minor. Transfer credit is not accepted toward the 15 semester hours of advanced work. Students should check with the minor department to identify acceptable courses.

A student must have a grade-point average of at least 2.0 in all work attempted in the minor department.

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

Students must inform the Registrar's Office of their desire to have a minor listed on their transcript at the time of applying for a degree. If the student has completed the requirements for a minor, a notation will be placed on the permanent record.

Each academic unit determines which of its advanced courses acceptable for minors. Students seeking information about acceptable courses should contact 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, African-American studies, global studies, Latin American studies, or women's studies.

Students who already have a bachelor's degree from The University of Iowa and who have not entered a graduate or professional program may complete the requirements for a minor and apply to the registrar to have a notation regarding the minor placed on the permanent record.

Restrictions

Students in the Bachelor of General Studies or Bachelor of Liberal Studies degree programs are not eligible to earn minors, since these programs are without majors.

The degree-granting programs in dental hygiene, early childhood education, elementary education, health occupations education, social studies, and special education do not offer minors.

Students who earn a bachelor's degree in interdepartmental programs—such as ancient civilization or literature, science, and the arts—may not earn minors in a field within the major degree field.

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

Undergraduate students in the colleges of Business Administration, Engineering, and Nursing may earn liberal arts minors by satisfying College of Liberal Arts requirements for minors. Engineering students interested in engineering physics, chemistry, or mathematics may not use course required in the engineering curriculum to satisfy the minor requirements in these three areas. (For other restrictions, see appropriate college sections of the Catalog.)

Minor in Business Administration

Students in the College of Liberal Arts may elect a minor in business administration. Students must complete the general admission requirements of the College of Business Administration to be considered for admission to the business minor program (see the "College of Business Administration" section of the Catalog). The courses listed below will satisfy all requirements for the minor.

A computer programming course

Business calculus (22M/17, 22M/25, or 22M/35) 3 s.h.

Statistics (22S/5 or 22S/125) 3 s.h.

6F1 Principles of Microeconomics 4 s.h.

6L2 Principles of Macroeconomics 3 s.h.

6L1 Introduction to Financial Accounting 3 s.h.

6L3 Managerial Cost Accounting 3 s.h.

6R100 Introduction to Marketing

6R100 Introductory Financial Management 3 s.h.

6L100 Administrative Management 3 s.h.

6L100 Introduction to Law 3 s.h.

*Must be taken in junior or senior year

At least 15 semester hours of courses taken for the minor must be completed at The University of Iowa. A grade-point average of at least 2.0 is required in all courses taken for the minor and in all of those courses taken at Iowa.

Interested students should complete or be registered for the first seven courses listed above before applying for admission to the business minor program. The first seven courses may be used as elective credit or used to satisfy College of Liberal Arts requirements in some instances. Students complete the remaining courses following their admission to the business minor program. Admission to the program is limited, and meeting minimum standards does not ensure admission.

Minors in Educaton

Liberal arts students who are pursuing the B.A. or B.S. degree may earn minors in the College of Education. The four available minors are educational psychology, general education, human relations, and science education. For specific requirements, call or visit the Office of Student Services in the College of Education.

Bachelor of General Studies

The Bachelor of General Studies (B.G.S.) degree is designed to give students maximum flexibility in planning their academic programs. There are no departmental major requirements for this degree; instead, students plan their own areas of concentration. Since this is an interdisciplinary program without a major, B.G.S. students may not earn minors.

Many B.G.S. candidates structure programs similar to student programs, but replace some of the departmental major requirements with courses more relevant to their particular goals. Other B.G.S. students have developed programs that overlap departments and for which no majors exist. A few examples of such interdisciplinary possibilities are world order studies, environmental studies, psychology, urban studies, public relations, and medieval culture. Some B.G.S. students develop double major areas of concentration, for example, political science and history or education and psychology.

New requirements for the B.G.S. degree were approved by the College of Liberal Arts Faculty Assembly in May 1985 and are being implemented according to the following guidelines. B.G.S. candidates, who enrolled on or after July 1, 1985, are not required to meet the new degree requirements. B.G.S. candidates, who enrolled before July 1, 1985, must complete the new degree requirements.

Students who enrolled at The University of Iowa prior to fall semester 1985 may choose the old or the new B.G.S. requirements, but not both. If students select the new B.G.S. requirements, they must graduate under those requirements.

After May 1990, students must graduate under the old B.G.S. requirements, regardless of the date of their first enrollment.

New B.G.S. Requirements

Completion of the General Education Requirements, including two semesters of a foreign language.

Completion at The University of Iowa of at least 36 semester hours of advanced coursework. No more than 18 semester hours of advanced coursework from any one department will be counted toward this requirement. Advance courses will be accepted for credit as specified by the institution.

General Education Requirements: At least 28 semester hours in the following areas:

- Communication
- Social and Cultural Institutions
- Physical Development and Health

Courses taken to satisfy the General Education Requirements may not be counted toward completion of the advanced course work requirement.

Achievement of a grade-point average of at least 2.0 in all college work attempted. All work undertaken at The University of Iowa and in all advanced courses attempted.

No more than 40 semester hours of credit in one academic department may count toward the 124 semester hours required for graduation.
Students completing a B.G.S. degree may earn no more than 30 semester hours of credit in all other colleges of the University while enrolled in the College of Liberal Arts. Undergraduate coursework offered by the College of Education is an exception to this rule.

At other College of Liberal Arts policies regarding total earned hours, residence, pass/fail, administrative standards, and so forth, apply to B.G.S. students.

Old B.G.S. Requirements

Completion of at least 45 semester hours of courses numbered 100 and above at The University of Iowa; no more than 20 semester hours of this upper-level course work from any one department will be counted toward this requirement.

Achievement of a grade-point average of at least 2.0 in all college work attempted.

No more than 60 semester hours of credit in one academic department may count toward the 45 semester-hour requirement for graduation.

Students completing a B.G.S. degree may earn no more than 30 semester hours of credit in all other colleges of the University while enrolled in the College of Liberal Arts. Undergraduate courses offered by the College of Education are an exception to this rule.

All other College of Liberal Arts policies regarding total earned hours, residence, pass/fail, administrative standards, and so forth, apply to B.G.S. students.

Teaching Certification with the B.G.S.

A B.G.S. student may earn teaching certification in early childhood, elementary, secondary, or special education in the following manner:

By meeting either the new or the old requirements for the B.G.S. degree given above.

By meeting the requirements for a particular teaching area; this usually involves fulfilling requirements in some field, for example, elementary education, English, social studies education.

By meeting certification requirements in the selected certification program; this includes methods courses and student teaching.

Students seeking teaching certification probably will take more hours in a single department than allowed under B.G.S. rules. Some courses offered in education and psychology are core listed, and this provision may be used to keep course totals within the maximum of 46 semester hours in any one department.

For Further Information

For further information about the Bachelor of General Studies program, call or visit the Liberal Arts Office or Academic Programs.

Bachelor of Liberal Studies

Offered by each of the three Iowa Regents universities (The University of Iowa, Iowa State University, and the University of Northern Iowa), the B.L.S. program is designed to serve adults who cannot attend college as full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and in accredited out-of-state colleges may be applied toward the degree, as may applicable courses taken from any of the three Iowa Regents universities. Types of courses available from the Regents universities include correspondence and independent study courses; radio, television, and newspaper Distance Education Program courses; extension courses, including those with distance-starting formats; and regular on-campus courses. Students also may take proficiency examinations.

While the B.L.S. is awarded by the College of Liberal Arts, the program is administered by the Division of Continuing Education.

Admission to the B.L.S. Program

Students wishing to graduate from The University of Iowa must apply for admission to the B.L.S. program at the Admissions Office.

To be eligible for admission to the program, the student must have earned either:

An A.A. degree from an accredited two-year college with a 2.0 grade-point average, or

At least 62 semester hours of collegiate work acceptable for credit toward graduation, with a 2.0 grade-point average.

B.L.S. Requirements

Of the 124 semester hours of credit required for the degree, at least 45 must be earned in four-year colleges in courses defined as upper-level (i.e., the College of Liberal Arts, courses numbered 100 and above). 45 must be composed in courses offered by the Iowa Regents universities, and 30 must be earned after application to the B.L.S. program in the specific Regents university that will grant the degree.

The B.L.S. candidate must meet the General Education Requirements of the Regents university from which the candidate expects to receive the degree. At The University of Iowa, B.L.S. candidates are required to complete all the General Education Requirements except foreign language and physical education. Students who have a valid A.S. degree from an accredited two-year college in Iowa may already have met these requirements.

Since there are no traditional majors available through the B.L.S. program, candidates must earn at least 12 semester hours (or 18 quarter hours) of credit in each of the three of the following distribution areas:

- Humanities
- Communications and arts
- Natural sciences and mathematical disciplines
- Social sciences
- Professional fields, as approved by the degree-granting institution

Of these 36 semester hours, 24 must be in upper-level courses, and at least 12 semester hours of upper-level credit in each of the distribution areas. Credits may be applied to the General Education Requirements may not be used to meet the distribution area requirements.

Graduation requires a minimum grade-point average of 2.0 in all course work applied toward the degree, in all course work completed after admission to the program, and in all upper-level course work.

For further information, call or visit the Admissions Office or the Center for Credit Programs.

Registration and Grading

Registration Procedures

Late Registration

Students will not be permitted to register after the third week of the semester or the first one and one-half weeks of the summer session.
Courses Listed in More Than One Department
For identical courses listed in more than one department, students may register under whichever course number they prefer.

Courses Open to Freshmen
Departmental officials are required to list courses open to freshmen in their departments. The College of Education requires that each course be described in the Schedule of Courses for current listings.

Maximum Schedule
The typical schedule is 15-16 semester hours in a regular semester, 18 semester hours in a summer session. The maximum permitted registration is 20 semester hours in a regular semester, 18 semester hours in a summer session. Students may obtain permission in the Liberal Arts Office of Academic Programs to register for more hours than the maximum allowed.

Changes in Registration
Changes in registration become effective on the date the completed form is submitted to the Registration Center.

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 the approval of the adviser and instructor. Courses may be dropped at any time during the first ten weeks of the semester or first five weeks of the summer session with the approval of the adviser and instructor. Special courses that meet on a different schedule or 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 at any time during the first one-half of the duration of the course and dropped at any time during the first two weeks of the duration of the course. Similar proportional deadlines will operate during the usual eight-week summer session and for other special session courses.

A dean’s approval is required for all adds after the third week of the semester (first one and one-half weeks of the summer session) and for all drops after the tenth week (fifth week of the summer session). Approval is granted only in extraordinary circumstances. Students should request a dean’s signature in the Liberal Arts Office of Academic Programs.

Undergraduate students in the College of Liberal Arts are assigned a mark of W (Withdrawn) for any course in any college dropped after the third week.

Undergraduates in other colleges receive a W as marking the course in the College of Liberal Arts after the third week, including courses numbered with the College of Education prefixes 7 and Science Education.

Program prefix 97. A mark of W is assigned for all courses dropped after the first one and one-half weeks of the summer session. For courses that begin or end at times other than the beginning and end of the semester, students may drop these courses any time within the first one-half of the duration of the course without being assigned a mark of W. Students may not drop the same course with a mark of W more than twice. Special courses may be repeated as exempt from this rule.

Dropping for Nonattendance
In order to prevent the overenrollment in crowded classes, instructors may drop from their classes any students who have not attended any class session during the first eight calendar days of the semester (four calendar days of the summer session), unless the student has offered reasons acceptable to the instructor prior to the eighth calendar day of the course for beginning the course late. This provision is for the benefit of those students who otherwise would be unable to enroll in certain crowded classes and should not be used in cases where these circumstances do not exist. Students should not assume that they will be dropped automatically from a course for nonattendance. These drop actions are made without the assignment of a mark of W.

Changes in Variable and Arranged Credit
Students who have registered for courses offered for variable or arranged credit may change the number of semester hours with the signatures of the instructor, the adviser, and the dean at any time prior to the end of the tenth week of the semester (fifth week of the summer session).

Other Changes in Original Registration
Changes involving pass-no pass registration or audit registration (zero credit) may be made only during the first five weeks of the semester (first one and one-half weeks of the summer session) and only with the approval of the adviser and instructor.

Students’ Responsibility
It is the responsibility of the student to see that the change in registration form is approved by the adviser, instructor, or dean (as needed) and delivered to the Registration Center.

Changes in registration become effective on the date the completed form is submitted to the Registration Center.

Withdrawal of Registration
Students may withdraw registration without academic penalty at any time prior to the end of the twelfth week of the semester or sixth week of the summer session. A record is given for the semester or session. Withdrawal after the deadline results in the automatic assignment of an F in each course. Students who withdraw registration may not be reenrolled after the deadline for that session.

Application for Degree
Students who want to be considered for graduation must file an application for a degree with the Office of the Registrar before the deadline for the session in which the degree is to be conferred. Students who want to have a minor listed on their transcript must inform the registrar at this time, so that completion of the requirements for the minor can be verified.

Graduation Analysis
Students may obtain a written graduation analysis by applying at the Office of the Registrar. A graduation analysis evaluates the progress a student is making toward a particular degree by checking total hours earned, grade point average, hours in residence, and courses completed to satisfy the General Education Requirements and requirements in the major. The analysis may be requested any time after completion of the sophomore year. Students are limited to one analysis.

Duplication
Duplication occurs when students take the same course more than once or take a course that duplicates the content of a satisfactorily completed course. Duplication is unacceptable to the registrar at the time of graduation analysis. Hours earned by duplication do not count toward the total number of hours needed for graduation. Grades for both courses, however, are used in computing the grade-point average.

Regression
Regression occurs when students take a more elementary course after having completed or taken a more advanced or higher level course in the same subject. At the time of graduation analysis, the registrar determines whether regression has occurred. Hours earned by regression do not count toward the total number of hours needed for graduation.

Grading Procedures

Marking System
The following marking system is used in the College of Liberal Arts:

Grade | Grade point for each s.h.
--- | ---
A | 4
B | Above Average | 3
C | Average | 2
D | Below Average | 1
F | Failing | 0
W | Withdrawn | Not used in computing GPA
P | Pass | Not used in computing GPA
N | Not pass | Not used in computing GPA
S | Satisfactory | Not used in computing GPA
Q | Q-Pass | Not used in computing GPA
Q | Q-No Pass | Not used in computing GPA (no grade submitted)
R | Registered | Not used in computing GPA
Grade-Point Average

The cumulative grade-point average is computed by (a) multiplying the semester hours in each course by the appropriate grade points; (b) totaling the grade points earned in each course and dividing the sum by the number of semester hours; and (c) excluding courses in which grades of D, W, P, N, S, S-, or R have been given. Grades of F are included in hours attempted and are used in computing the grade-point average.

Pass-No Pass

Students in the College of Liberal Arts have the option of taking elective courses on a pass-no pass basis. The mark of P may be used in lieu of grades of A, B, and C for authorized courses; students registered in a P-N system who receive grades of D or F will have N entered on their records. Liberal arts students taking courses in other colleges of the University will be subject to the grading policies of those colleges. Students from other colleges taking courses in the College of Liberal Arts will be subject to liberal arts grading policies.

If students are in good academic standing, they may register for pass-no pass during the registration week or before the beginning of the second week of classes (or the first one and one-half weeks of the summer session). For courses that begin or end at the same time other than the beginning and the end of the semester, students may register for pass-no pass at any time during the last five weeks of the duration of the course. The signatures of both the adviser and the instructor must be obtained on the proper form, and the form must be submitted to the Registration Center before the deadline.

The grades of P and N are not used in computing grade-point averages; the grade of N does not count as hours earned for graduation.

Pass-no-pass grading may be used in elective courses in order to satisfy the General Education Requirements or requirements in the major or minor may not be taken pass-no-pass.

Not more than 16 semester hours of P grades from all colleges will be accepted toward the bachelor's degree. Transfer students admitted to the University with fewer than 16 semester hours of credit may earn the maximum of 16 semester hours of P grades. Those admitted with 56 or more semester hours are limited to 8 semester hours.

A maximum of two pass-no-pass courses may be taken in any one semester.

Satisfactory-Fail

Credit courses in the College of Liberal Arts are offered on a satisfactory-fail basis, and are so designated in the Schedule of Courses. All students registered for such courses receive either an S or an F. Special forms are not necessary to register for S-F courses, since all students enrolled in such courses will automatically receive either an S or an F.

The grade of F will not be used in computing the grade-point averages, but the grade of P will be used. The grade of F does not count as semester hours earned for graduation.

Credit with the grade of S may be applied toward the General Education Requirements or toward requirements in the major or minor.

Not more than 16 semester hours with the grade of S will be accepted toward the bachelor's degree.

Auditing Courses

Students in the College of Liberal Arts may register as auditors if approval is granted by the adviser and the course instructor. In addition to obtaining the signatures of the adviser and instructor, students must register for zero credit in the course to be audited.

The mark of R (registered) will be assigned if the student's attendance and performances are satisfactory; if they are unsatisfactory, the mark of W (withdrawn) will be assigned. Course credit earned only for zero credit will be granted on an R-W basis. Courses offered for zero credit as well as for credit hours, when taken for zero credit, will be graded R-W. Courses completed with a mark of W will not meet any college requirement and will carry no credit toward graduation. Auditing may not be used as a second-grade-only option.

Second-Grade-Only Option

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

Students who wish to use the provisions of this option should register in the usual manner for the course they decide to repeat or add it during the regular period for adding courses (the first three weeks of the semester or the first one-and-one-half weeks of the summer session). Visit the Liberal Arts Office of Academic Programs to check their eligibility and to complete the proper forms; unless the forms are completed, grades will continue to be computed in the grade-point averages.

Restrictions

The second-grade-only option may be used only once per course. The provision of no credit may not be applied to a maximum of 16 semester hours.

If the course was taken for a grade the first time, it must be taken for a grade the second time. If the course was taken pass-no-pass the first time, it may be taken pass-no-pass or for a grade the second time.

The second-grade-only option may not be used if the first grade was assigned as a result of disciplinary action.

Incomplete (I)

A grade of I may be reported only if the unsubmitted part of the student's work (other than in research, thesis, or independent study) is small, the work is unsubmitted for reasons acceptable to the instructor, and the student's standing in the course is satisfactory. Courses may not be repeated to remove incompletes. Incomplete grades must be removed by completing the unsubmitted part of the work. Failure to remove the incomplete during the next semester for which the student is registered will result in the student's name being assigned to the Registrar's office. All special reports to the registrar removing incompletes must reach the registrar on or before the deadline for submitting final grades for the next semester in which the student is registered. No extensions to prevent the assignment of an F will be made. Instructors, if they wish, may allow students to finish incompletes at any time subsequent to the deadline, even if the incomplete has been changed to an F. In such cases, special report to the registrar forms must be sent for approval to the dean of the college since the instructor would be changing a grade.

No Report (0)

The 0 (zero) designation appearing on a student's permanent record must be changed to a valid grade according to the same rules that apply to incompletes.

Failure to remove the 0 by the specified deadline results in the assignment of an F.

Midsemester Reports

At the end of the first month, midsemester reports for all students whose work is below C. These reports are distributed to advisers.
and to individual students, but delinquent grades are not recorded on the permanent record.

Academic Probation and Dismissal

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.

Probation

Students who fail to attain the following minimum University of Iowa or total cumulative grade-point averages for their classes are placed (or continued) on probation:
- Freshmen (9-27 semester hours): 1.60
- Sophomores (28-55 semester hours): 1.75
- Juniors (56-89 semester hours): 1.90
- Seniors (90 or more semester hours): 2.0

Special students and extension students: 2.0

Students on probation will be restored to good standing if their University of Iowa and total cumulative grade-point averages equal or exceed the grade-point averages designated above. Actions to change probationary status normally are taken at the end of a semester or session.

The pass–cum–P (P) grading option may not be used by students in academic probation.

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

Dismissal

Students who are on academic probation for two consecutive semesters or sessions are subject to dismissal from the college for unsatisfactory scholarship. Freshmen admitted unconditionally (not on probation) are subject to dismissal after one semester on probation. Very poor academic work in any semester, however, may result in dismissal at the close of that semester. Under special conditions, students may be granted an additional semester on probation.

Readmission

Students dismissed for unsatisfactory scholarship for the first time will not be permitted to register again for a period of one year. Students dismissed a second time will not be permitted to register for at least two years. Requests for readmission must be in writing and should be addressed to the appropriate dean. Liberal Arts Office of Academic Programs, 116 Schaeffer Hall. Students who are permitted to register after the specified interval following a dismissal will be registered on probation.

Notification and Records

Students placed on probation, continued on probation, or dismissed from the college will be notified in writing of these actions by the associate dean of academic programs. The notice for "academic probation" will be placed on the permanent record of those students who are placed or continued on probation. Students admitted on probation will have the notation "admired on probation" entered on their permanent record. "Not permitted to register" will be entered on the records of those students who have been dismissed from the college, and the notation "not permitted to register" will not be removed until permission for readmission has been granted.

Attendance, Final Examinations, and Student Conduct

Class Attendance

Individual faculty members or course supervisors determine the policy regarding class attendance in each course. It is expected that students are permitted to make up examinations or other required work missed due to illness or participation in University-sponsored activities that necessitate absence from class. Students are required to observe the regulations as announced for the course. Individual instructors may assign extra work, lower grades, or recommend to the associate dean of academic programs that the student's registration for the course be dropped if absences are excessive.

Students are expected to attend classes regularly. It is suggested that instructors keep reasonably adequate attendance records, especially in courses in which freshmen are enrolled. When an instructor determines that a student has been excessively absent, that is, to such an extent that satisfactory academic progress, the instructor may call or send a written request to the Liberal Arts Office of Academic Programs for investigation and action.

For permission to be absent from class to participate in any regularly scheduled University event, members of athletic teams, the marching band, and other organized University groups are expected to present to each instructor prior to each absence a written statement signed by a responsible official specifying exactly the dates and times it is necessary to miss class.

Students who have been absent because of illness are expected to present evidence that they have been ill. Regular excuse forms for this purpose are available in each departmental office and in the Liberal Arts Office of Academic Programs. Students should not be asked to obtain excuses from the Student Health Service unless otherwise advised.

Commencement Attendance

Attendance at Commencements is optional. Candidatures for degrees should inform the Registrar in the Registrar's Office of their intent to receive a degree when they are scheduled to receive their degrees.

Final Examinations

Suitable periods for the administration of examinations is set aside at the end of each semester, during which time no classes are held. With the exception of any changes authorized by the associate dean of academic programs, all final examinations must be given according to the schedule as announced in the Schedule of Courses.

During the summer session there is no designated final exam period. Final exams are scheduled before the official end of the summer session, either during a regular meeting time or at a time determined by the instructor of the course in consultation with the students in the class.

For a more complete discussion of policies governing final examinations, consult the college's Classroom Manual.

Student Conduct

Any offense against good order committed by a student in a classroom or a laboratory may be dealt with promptly by the instructor or referred to the dean of student services. The instructor should report in writing any disciplinary action undertaken against a student to the dean of student services.

Academic Misconduct

Reporting of Plagiarism and Cheating

All cases of plagiarism and cheating in the College of Liberal Arts should be reported for action to the Liberal Arts Office Academic Programs through departmental channels with a statement of the necessary facts. The department and the instructor concerned also may submit recommendations in each case for appropriate disciplinary action.

Disciplinary Action

Individual instructors may reduce the student's grades, including the assignment of the grade of F in the course. A written report of this action should always be submitted.
to the Liberal Arts Office of Academic Programs.
The associate dean of academic programs, or the committee on student academic conduct, or a course holding or other penalties, as the offense may warrant; dismissal from the university, or recommendation of expulsion from the University.

Recognition for Academic Achievement

Dean's List
Liberal arts students who achieve grade-point averages of 3.5 or above during a given semester on 12 or more semester hours of graded work and who have no hours of I or S are recognized by inclusion on the Dean's List for that semester.

Honors Program
The College of Liberal Arts Honors Program offers special academic and extracurricular opportunities to outstanding students. Freshmen and sophomores 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 research, and the opportunity to pursue a major under the supervision of a faculty member. Successful completion of a senior honors project leads to a baccalaureate degree "with honors" in the major (see "Graduation Honors" below).

The Shanbrough House Honors Center is a meeting place and study center for students in the honors program. It houses a reference library, study lounges, and computer terminals. Each year the Associated Iowa Honors Students plan 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 (3.2) may join at any time. For further information, contact the Honors Program, Shanbrough House Honors Center.

Graduation Honors
High scholastic achievement is recognized upon graduation with distinction based upon grades only; and upon graduation with honors in a particular field, based on both grades and the completion of specific requirements specified by the college and the major department.

To be eligible for either form of recognition, students must complete the final 60 semester hours in residence in the College of Liberal Arts at The University of Iowa, of which at least 45 semester hours must have been completed prior to the student's final registration.

Graduation with Distinction
The Office of the Registrar certifies to the deans 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 highest distinction" to students in the next highest three percent, and "with distinction" to the next highest five percent. Ranking is based on students' grade-point averages for all college-level study undertaken prior to the final registration.

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

Admission Requirements
To qualify for admission to the College of Liberal Arts, applicants must meet the college's admission requirements. Applications are accepted for graduate study at any time of the year. Applicants are advised to submit their applications early to ensure prompt consideration.

The University of Iowa reserves the right to amend the requirements for admission at any time. The requirements for admission are subject to change without notice.

Entrancing Freshmen
Applicants seeking admission as entering freshmen must have the high school from which they graduated provide a certificate of high school credits, including a complete statement of high school record, class rank, courses on standardized tests, and certification of graduation. Applicants may be admitted conditionally after they have completed the junior year in high school, but admission is not final until receipt of the final transcript and certification of high school graduation.

Graduates of approved Iowa high schools who are in the upper one-half of their graduating class and meet specific curriculum requirements generally are admitted after certification of graduation. Applicants who are not in the upper one-half of their graduating class may be required to take special examinations and, after a review of all their records and at the discretion of the admissions officer, may be admitted unconditionally, admitted on probation, required to enroll for a trial period during a preceding summer session, or denied admission. An ACT score of 24 is required for automatic admission of all Iowa resident high school graduates who are in the top half of their graduating class. Graduates of accredited high schools in other states are expected to meet higher standards than the minimum requirements for graduates of Iowa high schools. The options for admission by probation or trial enrollment may not be open to these students. Nonresident students must be in the upper 30 percent of their graduating class or must have ACT scores of 25 or above for automatic admission.

Graduates of nonapproved high schools must submit all data required above, and must take examinations that demonstrate their general competence to do successful college work. Applicants who are not high school graduates must submit all data required above, take examinations to demonstrate general competence to do college work, and provide evidence of specific competence for admission to a given curriculum.

Transfer Students
Students from Accredited Colleges and Universities
Transcripts of records are given full value if they come from colleges or universities accredited by the American Association of Colleges and Secondary Schools or similar regional associations. The recommendations contained in the current issue of the Report of Credit Gained by Educational Institutions published by the American Association of Collegiate Registrars and Admissions Officers is followed for schools not regionally accredited.

Applicants must submit an official transcript bearing the original seal and signature of the official in charge of records from each college or university they have previously attended. Applicants also must submit high school transcripts, scores on standardized tests, and other records or letters from the College of Liberal Arts may require to support their applications for admission.

Transcripts of records are accepted to maintain a C average (2.0 in a four-point system) for all college work attempted, and must not be under suspension from the last college attended. Transfer applicants who are not Iowa residents are expected to have maintained a 2.5 average. Applicants who do not meet this standard may be permitted to take entrance examinations. Applicants who successfully complete the examinations may be admitted without probation.
Foreign undergraduate students are subject to the same rhetoric requirement as U.S. students. Unless they have fulfilled the rhetoric requirement by earning at least an A.A. degree from an Iowa community college participating in the Iowa Community College Articulation Agreement, foreign undergraduates whose TOEFL scores are above 550 must enroll in rhetoric.

Like foreign applicants, permanent resident (green card) aliens and non-English-speaking countries may be required to submit a TOEFL result.

The linguistics department offers six EFL courses for students who need to improve their English proficiency.

Special Students

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

Credit for Military Service

The admissions officer is authorized to evaluate transcripts from the military services according to the recommendations contained in the American Council on Education’s Guide to the Evaluation of Experiences in the Armed Forces with the understanding that any inconsistencies between such recommendations and the standards of the College of Liberal Arts will be referred to the Liberal Arts Office of Academic Programs. The Council of Academic Programs, in consultation with counterpart correspondence courses may be accepted for credit under appropriate circumstances.

Credit by Examination

A maximum of 32 semester hours of credit by examination from all approved sources is accepted toward the 124 semester hours required for graduation. Credit by examination may be used as elective credit, or it may be applied toward the General Education Requirements or requirements in the major or minor.

Placement and Exemption Examinations for General Education

Full or partial exemption from the requirements in rhetoric, mathematics, physical education, or foreign language may be awarded for satisfactory performance on tests administered at The University of Iowa. In addition, exemption and academic credit may be awarded in most general education areas for satisfactory scores on examinations administered by the Advanced Placement Program (AP) or the College-Level Examination Program (CLEP) (see below).

Credit by Examination in the Major

Departments may administer examinations covering required courses or areas of instruction and may grant credit with a grade of P for the successful completion of such examinations. The maximum credit by examination that may be awarded in the major field is 16 semester hours. Credit toward graduation is awarded to foreign language majors only for passing examinations covering the third and fourth semester level (or above). Credit by examination may not be applied to the 12 semester hours of advanced courses permitted for the minor.

Advanced Placement Program

Students who pursue college-level learning while still in high school may take the AP testing program to demonstrate their level of achievement. This program was designed by the College Board to provide a means for colleges and universities to evaluate the college-level preparation of participating students and to provide opportunities for high school students to begin college-level study while still in high school. Scores earned by students are evaluated by the colleges to determine whether college credit or advanced placement is warranted. Credit awarded through AP may be applied to the General Education Requirements, to requirements in the major or minor, or to elective credit.

Specific credit policies and further information can be obtained from the Liberal Arts Office of Academic Programs or the Evaluation and Examination Service.

College-Level Examination Program (CLEP)

CLEP is an achievement testing program offered by the College Board that allows students to demonstrate college-level competence in 27 fields. The CLEP Program is designed for students of various ages and education backgrounds, including those who have not attended college, those who have attended college and left before earning a degree, those with work experience, those who have served in the military, and those who are studying in their home country. CLEP may be used to demonstrate college-level achievement in any of the fields covered by the CLEP Program. Students who wish to participate in CLEP are encouraged to determine whether credit has been awarded for the course for which the student is preparing to test. Credit, however, is granted only for courses in which students achieve a score that meets the minimum acceptable score for the corresponding University course. The CLEP program is administered by the College of Liberal Arts and the Examination Service.

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 six months have passed since the last date of attendance. When eligible for consideration, these applicants are considered on a provisional basis of their performance on the entrance examinations.

Transfer applicants under disciplinary suspension are not considered for admission until a clearance and a statement of the reasons for suspension from the previous college are filed. When it becomes proper to consider an application from a student under suspension, the college must take into account the previous suspension. Applicants granted admission under these circumstances are admitted on probation, and their admission is subject to cancellation.

Students from Nonaccredited Colleges

The College of Liberal Arts may refuse to recognize credit from a nonaccredited college or may require the applicant to take courses on a provisional basis and provide a means for the validation of some or all of the credit.

The validation period is not less than one semester and is ordinarily a full academic year.

The college specifies to the student the terms of the validation process at the time of provisional admission. Students from nonaccredited colleges are considered on the basis of their merits, ability, or rejection is at the discretion of the admissions officers.

Foreign Students

Foreign students (those who are or will be in the United States on a nonimmigrant status), unless U.S. high school graduates or in the case of graduate students, are required to meet higher standards for admission (as are non-U.S. students) than the minimum requirements outlined for a resident of the state of Iowa high school.

Applicants whose native or official language is not English must provide a score report from the Test of English as a Foreign Language (TOEFL) before admission is granted. No Admissions Office may use other tests or criteria for judgment of English language proficiency for admission purposes. Students admitted with a TOEFL score of 550 or higher are considered proficient in English and are not subject to any additional English language requirements. Applicants with TOEFL scores below 550 are required to take an English proficiency examination conducted by the linguistics department.

Undergraduate applicants with TOEFL scores below 550 may be admitted to the University conditionally. The provisional admission is made final only after the student completes any English as a foreign language (EFL) courses recommended as a result of the linguistics department's proficiency examination.
so prior to their first enrollment that ext results can be used to plan beginning first-semester schedules. 

Specific credit policies and further information can be obtained from the Liberal Arts Office of Academic Programs and the Examination and Evaluation Service.

Valuation of Credit

Students with educational experience obtained at a non-collegiate institution or in a formal training program in which there is no standardized procedure for evaluation of credit may seek the validation of this credit. The Liberal Arts Office of Academic Programs and the Examination and Evaluation Service should be consulted for approval to take the appropriate examinations.

Nondepartmental Courses

Unified Program Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>000-43</td>
<td>Humanities I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>000-44</td>
<td>Humanities II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>000-45</td>
<td>Humanities III</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>000-47</td>
<td>Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>000-48</td>
<td>Introduction to Comparative Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>000-49</td>
<td>History I</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>000-50</td>
<td>History II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>000-51</td>
<td>Science I (Lab)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>000-52</td>
<td>Science II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>000-55</td>
<td>Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>000-56</td>
<td>Basic Mathematics</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

Other Nondepartmental Courses

Courses numbered 10 and 11 are nondepartmental courses used principally to satisfy the General Education Requirements.

10-14 Biology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-51</td>
<td>Introduction to Biological Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>10-52</td>
<td>Principles of Biology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

15-19 English

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-1</td>
<td>English Composition</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>15-2</td>
<td>Survey of English Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>15-3</td>
<td>American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>15-4</td>
<td>Shakespeare</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

20-24 History

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-10</td>
<td>Survey of World History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20-11</td>
<td>Ancient History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20-12</td>
<td>Medieval History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20-13</td>
<td>Modern History</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

25-29 Mathematics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-10</td>
<td>College Algebra</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25-11</td>
<td>Analytic Geometry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25-12</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

30-34 Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-10</td>
<td>General Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>30-11</td>
<td>General Chemistry</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>30-12</td>
<td>General Biology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

40-44 Social Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-10</td>
<td>Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>40-11</td>
<td>Political Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>40-12</td>
<td>Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>40-13</td>
<td>Sociology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Aerospace Military Studies

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>Aerospace Studies I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>1001</td>
<td>Aerospace Studies II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>1002</td>
<td>Aerospace Studies III</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>1003</td>
<td>Aerospace Studies IV</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Leadership Laboratory

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1100</td>
<td>Leadership Seminar</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>1101</td>
<td>Leadership Practicum</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

Four-Year Program

The four-year program consists of the General Military Course (GMC) and the Professional Officer Course (POC). The GMC consists of a non-credit block of ARBTOC in addition, books and uniforms for ARBTOC classes are provided. The GMC consists of four one-credit ARBTOC courses and the leadership laboratory. Normally, freshmen students take 230-111 The Air Force Today and sophomore students take 230-112 The Development of Air Power. Students are then considered an ARBTOC cadet, a student also meets 230-111-112 Leadership Laboratory. The professor of aerospace studies may grant credit toward completion of the GMC for previous military experience.

Three-Year Program

The three-year program is the same as the four-year program, except that the GMC is taken in one year. Sophomores take the freshman and sophomore sequence simultaneously. This results in two semester hours of ARBTOC plus two leadership laboratories per semester.

Two-Year Program

The two-year program consists of field training and the Professional Officer Course (POC). Entry into the two-year program is competitive, and students must have at least two academic years of either undergraduate or graduate work remaining in college. The POC consists of four credit ARBTOC courses and 230-111-112 Leadership Laboratory. Juniors take 230-111-112 Leadership Laboratory. Students who want to enter the two-year program should contact the professor of aerospace studies by January before the fall semester of their junior year. Applicants are evaluated on the basis of college major, grades, ACT/SAT scores, the Air Force Officer Qualifying Test (AFQT), an air force medical exam, a personal interview by a board of U.S. Air Force officers, successful completion of field training, and the recommendation of the professor of aerospace studies. Students who make a commitment to serve a minimum of four years as a U.S. Air Force officer. Leadership Laboratory

Leadership Laboratory is a cadet-centered activity. It is largely cadet-planned and is directed toward promoting leadership training experience that will improve a cadet’s ability to perform as a U.S. Air Force officer. Freshmen and sophomores
Field Training

All PVC applicants must subsequently complete field training at a U.S. Air Force base during a summer, normally between the sophomore and junior years. There are two types of field training: a four-week course for cadets in the four-year and three-year programs and a six-week course for two-year program applicants. Field training consists of aircraft, airspace, career, and survival orientation, junior officer training, physical training, small arms training, human relations education, and equal opportunity training. The six-week field training provides 60 hours of academics that a student normally would have taken as a freshman and sophomore. Students receive authorized pay and allowances when they attend field training.

Special Activities

The Cadet Corps sponsors many social events, including informal parties, a formal dinner, the Military Ball, and an awards ceremony.

Cadets can join the Arnold Air Society, a business-orientation alumni 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 the military and learn about officer pay and allowances.

Selected APROTC cadets may attend airbone training and special training, wear the army parachute "jump wings."

Financial Assistance

APROTC scholarships are available for four, three and one-half, three, two and one-half, and two years. In addition, three- and two-year pre-professional and nursing scholarships are offered. All scholarships are based on merit and 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 aeronautics.

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

Educational Delay

Cadets may request an educational delay to postpone entry to active duty until after completion of an advanced degree program or professional training program.

Courses

2241.1 The Air Force Today
Introduction to the U.S. Air Force, including missions, organization, and military training. Written assignments. Offered fall semester.

2247.1 The Air Force Today
Introduction to the U.S. Air Force, including missions, organization, and military training. Written assignments. Offered fall semester.

2241.1 The Development of Air Power
Introduction to the development of U.S. air power. History of early use of balloons to the contemporary use of space vehicles. Manuscripts supplied. Offered fall semester.

2242.1 The Development of Air Power
Introduction to the development of U.S. air power. Offered spring semester.

235.3 Basic Flight: Ground School
Prepares students to pass the preliminary flight test. Includes study of aircraft systems, aerodynamics, flight laws, weather, navigation, weather, and flight instruments. Offered fall semester.

235.4 Basic Flight: Ground School
Prepares students to pass the preliminary flight test. Includes study of aircraft systems, aerodynamics, flight laws, weather, navigation, weather, and flight instruments. Offered fall semester.

235.5 Leadership Laboratory
Leadership Laboratory
Leadership laboratory for cadets serving in combat and training units that require leadership skills in patient care at U.S. Air Force clinics. Offered fall semester. May be repeated for credit.

235.6 Leadership Laboratory
Leadership laboratory for cadets serving in combat and training units that require leadership skills in patient care at U.S. Air Force clinics. Offered fall semester. May be repeated for credit.

235.11 National Security Forces 1
Introduction to the federal role as part of the Department of Defense. A study of the military role in the civil world. Offered fall semester.

235.12 National Security Forces 2
Continuation of 235.11 offered spring semester.

235.13 National Security Forces 3
Continuation of 235.12 offered spring semester.

235.14 Management
Management
Management course designed to give junior officers concepts in management, principles, and practices as they relate to the military. Includes organization of time and energy, methods of communication, and job related skills and responsibilities. Offered fall semester.

235.15 Management and Leadership
Management and Leadership
Continuation of 235.14 offered spring semester.

235.17 Readiness in Command
Readiness in Command
Readiness in Command laboratory of technical or contemporary issues related to the military. May be repeated for up to a total of 4 hours.

Jonathan Walters (History/African-American World Studies)

Degree offered: M.A.; also cognate course work toward a law degree and Ph.D. in American Studies

Because the African-American World Studies Program focuses on students of African ancestry in American history and culture, from the slave trade to the present, the program is designed to offer courses in both humanities and social science. Although the program at present emphasize history and literature, the African-American World Studies Steering Committee is committed to continually expand program perspectives by developing courses that have the breadth and depth to study from many disciplines in the humanities and social sciences.

The program originated in 1969 through the initiative of the directors of the African-American Studies Program and the history of African Americans in the United States is designed to provide a comprehensive understanding of the role of African-Americans in the development of this country and its institutions and to broaden the understanding of the role of African-Americans in the development of the community. The program includes courses in the history of African-American Studies, a Master Arts degree in Afro-American Studies, and concentrations in Afro-American Studies in programs leading to a B.A., M.A., or Ph.D. in American Studies. Students interested in Afro-American History and Literature can also continue courses in the African-American World Studies Program in a special field or cognate area. Originally called the Afro-American Student Program, the program was named the African American Studies Program in 1986. This new name more accurately describes the philosophy and the breadth of the program.

All students in the program are prepared to work in colleges and universities as professors, administrators, and administrators and for many other institutions and organizations. The program prepares students to work in public education, teaching, public administration, business, and government service. As a result, the African American Studies Program offers training important to any individual whose career will require understanding and knowledge of Black Americans.
Undergraduate Program

Although the African-American World Studies Program does not offer an undergraduate major leading to a degree in African-American Studies, students interested in the field may concentrate on Afro-American studies in a program leading to the B.A. degree in American studies. Such a concentration includes 129-128 Literature of the African Peoples, 129-130 Introduction to Afro-American Society, 129-140 Introduction to Afro-American Culture, and five electives from courses numbered 120-130 through 125-150. Courses recommended in Afro-American literature and history are 120-150-117, Afro-American Literature 11-13 and two of the following: 125-130 Afro-American History 1650-1830, 125-130 Afro-American History 1830-1914, and 125-130 Afro-American History 1914 to the Present.

Minor

The African-American World Studies Program offers a minor in Afro-American Studies to undergraduate students. The requirements conform to the general requirements for minors in the College of Liberal Arts. In consultation with his or her adviser, the student selects 15 semester hours (five courses) in designated African-American World Studies courses. Four of these courses must be numbered 110-118 or above and must be taken at The University of Iowa. Courses are available in the office of African-American World Studies (310 English-Philosophy Building). In the Office of Academic Programs, and in the offices of most departments.

Advisers in the program recommend that students seeking a minor in Afro-American Studies select an introductory course from the following: 125-100, 125-110, 125-120, or 125-130. Advisers also recommend 125-140 or 125-117 and 125-150 or 125-160 as two of the upper-level courses.

Graduate Programs

Master of Arts

The interdisciplinary curriculum leading to a Master of Arts degree in Afro-American Studies provides an intensive, organized, graduate-level examination of Afro-American culture and experience. Such a program especially benefits individuals preparing for careers in college teaching, work with community-service organizations, or those in which an understanding of Afro-Americans may be necessary.

Curriculum Requirements

The Master of Arts program in Afro-American Studies comprises 34 post-baccalaureate semester hours, usually completed in three semesters. Requirements include 125-211 Introduction to Research in Afro-American Culture (3 s.h.), 125-312 Advanced Research in Afro-American Culture (4 s.h.), and 12 semester hours of required courses in Afro-American studies.

Most students will be required to earn 6 semester hours in literature/history by taking 125-117-118 Afro-American Literature 1-13 and two of the following: 125-155 Afro-American History 1650-1830, 125-155 Afro-American History 1830-1914, 125-158 Afro-American History 1914-Present. Students who have earned undergraduate or graduate credit for a year-long survey of either Afro-American literature or Afro-American history will satisfy the literature/history requirement by studying the area in which they have no credit. Students who have earned neither undergraduate nor graduate credit in Afro-American literature and Afro-American history may be required to complete both 125-117-118 Afro-American Literature 141 and two of the following: 125-155 Afro-American History 1650-1830, 125-155 Afro-American History 1830-1914, 125-158 Afro-American History 1914-Present, with only 6 semester hours of credit allowed toward the M.A. degree. A student who has completed year-long undergraduate or graduate survey in both Afro-American literature and Afro-American history will be permitted to satisfy the literature/history requirement by selecting 6 semester hours of Afro-American studies electives approved by the student's adviser.

To complete the curriculum, students select 15 semester hours of electives in consultation with their adviser. Recommended are courses in Afro-American music, Afro-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.

Because the African-American World Studies steering committee wants to encourage doctoral study for those who have the ability, interest, and resources, it recommends that the 6 semester hours of electives in the Master of Arts program be used to explore doctoral education in disciplines outside African-American world studies. Possible fields for study are American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least one or one-half of the courses in the M.A. curriculum from those numbered above 200.

Language/Tool Requirements

No foreign language or tool is required for the Master of Arts program in Afro-American Studies, but students considering doctoral study in related fields are encouraged to complete one tool/language requirement for use in any field while studying at the master's level.

Comprehensive Examinations

Each student is required to pass a written comprehensive examination in Afro-American Studies. The 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 and approved by the African-American World Studies steering committee. An oral examination may be required as a follow-up to the written one.

Thesis/Project Requirements

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

Students who do not prepare a thesis are required to develop, in consultation with an adviser, a project related to Afro-American culture and/or experience. When completed, this project must be presented and defended before an appropriate class in Afro-American studies. Credit for the thesis or project usually is earned through registration in 125-312 Advanced Research in Afro-American Culture.

Admission

In addition to the general requirements of the Graduate College, unconditional graduate admission to the African-American World Studies Program requires that a student have an appropriate educational background and a strong academic record, including at least 6 semester hours of undergraduate coursework in Afro-American literature and Afro-American history and a minimum grade-point average of 2.7 in previous college course work (or at least a 3.0 in previous college course work). A student may be admitted to take, without credit toward the master's degree, courses needed to remedy deficiencies in undergraduate preparation. An applicant for admission is expected to provide three letters of recommendation from former professors and a sample of his or her written scholarly work. Recommendations for admission are made by the admissions subcommittee of the African-American World Studies steering committee.

Concentration within M.A. Program in Afro-American Studies

A student concentrating in Afro-American studies within a Master of Arts program in Afro-American studies is encouraged to prepare a career as a research scholar or a collegium-teaching teacher, and proposes to undertake doctoral work in American studies. Of the 26 post-baccalaureate...
 semester hours required for the degree, 12 to 24 formally are taken in Afro-American studies. Since the African-American World Studies Program is interdisciplinary, students taking 24 semester hours are required to complete 125:211 Introduction to Research in Afro-American Culture, 129:116-117 Afro-American Literature I-III, and two of the following—129:105, 129:106 Afro-American History 1860-1930, 129:116 Afro-American History 1930-1945, 129:116 Afro-American History 1945-Present—except when they have taken equivalent courses as the undergraduate level.

For other requirements, see "African-American Studies," described in this section of the Catalog.

Concentration within Ph.D. Program in American Studies

Generally, a student seeking a Ph.D. in American studies with a concentration in Afro-American studies is preparing to be a teacher or research scholar at the college or university level. Of the minimum 72 profit- or non-profit semester hours required for the degree, at least 36 semester hours (not including the thesis) must be in courses in Afro-American studies, including 125:211 Introduction to Research in Afro-American Culture, 129:116-117 Afro-American Literature I-III, and two of the following—129:105 Afro-American History 1860-1930, 129:106 Afro-American History 1930-1945, 129:116 Afro-American History 1945-Present—except when the student has completed graduate level course work in Afro-American history and literature before enrolling in the graduate program at The University of Iowa.

The interdisciplinary concentration in Afro-American humanities and social sciences requires students to explore both areas. The Black Studies Program opens research from more than one field, while focusing on an aspect of African-American life or experience. Additional requirements are described in "American Studies" in this section of the Catalog.

Cognate Areas, Special Fields

It is possible for students to take concentrations of Afro-American studies courses as cognate areas or special fields in Ph.D. programs in history, English, and other disciplines. For further information, consult an advisor in African-American World Studies.

Co-curricular Activities

Black Kaleidoscope

The African-American World Studies Program promotes knowledge and consciousness of black culture by sponsoring Black Kaleidoscope, a series of lectures and demonstrations by scholars and artists distinguished in Black culture.

Institute in Afro-American Culture

From 1964 through 1978, The University of Iowa served as summer host for an Institute in Afro-American World Studies for college and university teachers. The institution, which brought renowned artists and teachers to the campus, focused on topics such as the Harlem Renaissance, Richard Wright, W.E.B. DuBois, Black Art in America, and slave narratives. Although students in residence at the University are not eligible to be official members of the institute, they are permitted to enroll in a 1-2 semester-hour course offered at the white campus as the "Institute" on the current year's topic. The program plans to offer institutes in future summers.

Black Action Theater

Recently sponsored through the African-American World Studies Program, Black Action Theater gives participants instruction and experience in theatrical productions of plays by Black authors.

Afro-American Cultural Center

The African-American World Studies Program encourages students to use facilities of the Afro-American Cultural Center. The center serves as a research and library of educational and cultural artifacts and exhibits of Black culture, providing cultural enrichment for Black people of the Iowa City community and as a cultural meeting place for Black students. It also attempts to promote a Dialogue of Black culture that will promote interpersonal understanding among all members of the University community. Focused on "Cultural Centers" in the "Student Life at Iowa" section of the Catalog.

Black Genesis Toupee

The African-American World Studies Program also encourages participation in Black Genesis Toupee, a student organization that blends dance, music, poetry, and visual arts in representations of Black culture and history.

Afro-American Studies Graduate Student Association

The African-American World Studies Program Graduate Student Association attempts to promote interest in Black culture by sponsoring programs on various topics. Any University of Iowa graduate student interested in Afro-American studies is eligible to be a member.

Related Courses

Although they are not included in the basic list of courses in the African-American World Studies Program, the following are recommended for interested students. For course descriptions, see the appropriate sections of the Catalog.

Business Administration

6:52 Collective Bargaining 3 s.h.

Economics

6:137 Problems in Urban Economics 3 s.h.

Education

7:104 Education in the Third World 2 s.h.

7:206 Educational Sociology 2.5 s.h.

7:380 Seminar: Value Problems in the Administration of American Education 3 s.h.

7:107 Socialization of the School-Age Child 3 s.h.

7:133 The Culturally Interested in Educational Settings 3 s.h.

History

16:45 American History, 1492-1877 3 s.h.

16:46 American History, 1877-Present 3 s.h.

16:117 American Intellectual History to 1877 3 s.h.

16:15 American Intellectual History from 1877 3 s.h.

16:183 United States in the Early Republic 3 s.h.

16:144 Civil War and Reconstruction 3 s.h.

16:153 The Global Age in America to 1930 3 s.h.

16:154 The New Era and The New Deal 1930-1940 3 s.h.

16:170 The Contemporary United States 1940-Present 3 s.h.

16:171 The Revolutionary Generation in America 3 s.h.

Courses

African-American World Studies and Related Areas

For Undergraduates

1:199 Literature of the African Peoples 1 s.h.

1:200 Introduction to selected works of selected people from the Western World, the Americas, and Africa.

1:311 Black Poetry Workshop 1 s.h.

Survey of Black poetry, from its roots in oral tradition to the Black Arts movement of the 1960's, with an emphasis on the work of selected contemporary poets and critics.

1:313 Contemporary Black Superheroes 1 s.h.

Poems and stories of contemporary Black superheroes. Emphasis on the comics as a genre and the cultural significance of the Black Superhero.

1:315 Introduction to Poets of Black Women 1 s.h.

Introduction to African-American women writers, focusing on fiction, poetry, and criticism. Women who have written about African and African-American women writers.

1:317 Intellectuals of the Black Community 1 s.h.

A study of selected works by 20th century Black intellectuals and their role in African-American thought. Focus on significant works in the 1920's-1960's.

1:319 Introduction to the Afro-American Society 1 s.h.

Topics in Afro-American history, society, and culture. An introduction to the major social and cultural history of the African-American community.

For Graduates

1:396 Literature in the African Peoples 3 s.h.

1:399 Literature of the African Peoples 3 s.h.

1:401 Introduction to selected works of selected people from the Western World, the Americas, and Africa.

1:511 Black Poetry Workshop 1 s.h.

Survey of Black poetry, from its roots in oral tradition to the Black Arts movement of the 1960's, with an emphasis on the work of selected contemporary poets and critics.

1:513 Contemporary Black Superheroes 1 s.h.

Poems and stories of contemporary Black superheroes. Emphasis on the comics as a genre and the cultural significance of the Black Superhero.

1:515 Introduction to Poets of Black Women 1 s.h.

Introduction to African-American women writers, focusing on fiction, poetry, and criticism. Women who have written about African and African-American women writers.

1:517 Intellectuals of the Black Community 1 s.h.

A study of selected works by 20th century Black intellectuals and their role in African-American thought. Focus on significant works in the 1920's-1960's.

1:519 Introduction to the Afro-American Society 1 s.h.

Topics in Afro-American history, society, and culture. An introduction to the major social and cultural history of the African-American community.
that leads to increased opportunities for teaching and research.

Several established programs and resources at The University of Iowa benefit the African Studies Program. The Stanley Collection of African art, which is part of the Museum of Art, is central to the program. It is of enormous benefit to students interested in all aspects of African art. The many contemporary African writers who participate in the International Writers Program, African scholars who come to campus through the Program for International Development, and African students enrolled in the School of Journalism and Mass Communication master's program in development support communication and strengthen the African Studies Program, as does the exchange between The University of Iowa and the University of Ouagadougou, established in 1983 with funds from a United States Information Service grant.

Certificate Program

The African Studies Program provides undergraduate students with an interdisciplinary background in the study of Africa to complement a departmental major and serves as a step toward possible graduate study of Africa.

The curriculum for an undergraduate certificate in African Studies includes 21 semester hours of courses in Africa. These are divided into three levels of study: introductory, intermediate, and advanced. Undergraduate students pursuing the certificate take 107 hours to complete it. Each course in the program is an introduction to the continent's history, art, literature, politics, and people and is an introduction to the Africanic facility at Iowa. This includes a 15-semester hour requirement of intermediate (107-level) lecture courses, with at least one course from each of four areas of study: literature, art, history, and social science. Students who complete the certificate have the study of an area or an advanced program in Africa.

Course Requirements

Full descriptions of each of the courses listed below are given in the appropriate departmental sections of the Catalog.

Foreign Language Requirements

The College of Liberal Arts and Sciences requires that all majors in the Study of Culture, History, and Society major have a proficiency in a foreign language. The subject area consists of a major in African Studies.

Introductory Course

472 Contemporary Africa 3 s.h.

Intermediate Courses

One 3-semester hour course in each of the following areas (12 semester hours total):

- Literature
- African Peoples 3 s.h.
- African Drama 3 s.h.
- African Literature 3 s.h.
- African Modern African Novel 3 s.h.
- African Diaspora 3 s.h.

- Art
- Art of West Africa 3 s.h.
- Art of Central Africa 3 s.h.
- Themes in African History 3 s.h.

- African Music 3 s.h.

- History
- History of Pre-Colonial Africa 3 s.h.
- History of Colonial Africa 3 s.h.
- History of Modern African History 3 s.h.

- Social Sciences
- African Development 3 s.h.
- The Politics of Southern Africa 3 s.h.

- Elective 3 semester hours in any of the four areas

Advanced Course/Seminar

A seminar or an advanced course in any of the four areas listed above (3 semester hours). Among the advanced courses offered are the following:

- African Seminar Problems in African Art 3 s.h.
- Three African Writers 3 s.h.
- African Food Class 1 s.h.

Further information on the African Studies Program is available from the Center for International and Comparative Studies, 405 Jefferson Building, The University of Iowa, Iowa City. 52242.

Aging Studies Program

Coordinator: Norma Leitao


Aging Studies Program

Aging Studies Program

The Aging Studies Program is designed to provide undergraduate and graduate students with a multidisciplinary approach to gerontology. The program consists of courses that have been coordinated and sequenced to provide a broad background in aging for students of various disciplines. All students plan their core study with the academic advisors in close cooperation with the Aging Studies Program coordinator.

Program Requirements

The Aging Studies Program provides an approved semester of some course work related to aging at the 100-level or above. This aging-specific course work is defined as courses within the University that are focused principally on older persons, the aging process, or intervention methods or techniques with the elderly or aging as the target.

Students are required to take an introductory aging course and complete each of the two required courses in psychology and sociology. With the approval of the student's major department, course work may be applied to the student's major or professional program of study. Six semester hours must be taken outside the student's major department.

Students should take the introductory aging course prior to or concurrent with other courses in the program. The research project or the practicum course should not be taken until the 9 semester hours of the program are completed.

Program Eligibility

The program is open to all interested undergraduates, upper-level undergraduates (must have completed 45 semester hours), and special status students whose careers interests and needs will be served by completing the program.

Students in good standing at the aforementioned levels may establish plans of study with the Aging Studies Program coordinator, who will work with the student and his advisor to shape a plan of study compliant to the student's academic program and career interests.

Students should contact the Aging Studies Program coordinator to develop an appropriate plan of study. The program includes required courses and a capstone experience that shape the sequence of course work to be taken. The coordinator agrees to record of the student's approved program end of his or her progress. Upon completion of the program, the coordinator notifies the registrar, who indicates...
completion of the program on the student’s transcript.

Minor
Undergraduate students in the colleges of Liberal Arts, Business Administration, Nursing, Engineering, or Education may complete a minor in aging studies by taking 15 semester hours in courses outside of their department or college that are approved for the program. The minor must be approved by the student’s college of department. At least 12 of the 15 semester hours must be taken in advanced courses (junior level or above) at The University of Iowa.

Courses
For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

Introductory Courses
All students must take at least one and no more than two introductory courses. The introductory courses accepted in the program include:

17:108 Basic Aspects of Aging
34:120 Aging and Society
42:184 Multidisciplinary Perspectives on Aging
96:120 Introduction to Gerontology

Practicum and Research Courses
At least 3 and no more than 6 semester hours of credit for a practicum and/or research course will be accepted for the Aging Studies Program. Practicum and research courses include:

17:100 Cooperative Education Internship
17:105 Home Economics Internship
42:190 Selected Aspects of Social Work and Social Welfare-Interdisciplinary Field Work in Gerontology

Other departmental practicum or research courses will be accepted if they are related to the purpose of the course of study specific.

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

American Studies
45:13 Aging in America
Anthropology
115:136 Aging: A Cross-Cultural Perspective

Biological
37:271 Seminar in Cell Physiology

Business Administration
68:123 Public Economic Security Programs
72:280 Topic Seminar in Counselor Education
Dentistry
112:145 Introduction to Geriatric Dentistry
Health and Hospital Administration
46:105 Long Term Care Administration
Home Economics
73:111 Individual and Family Development: Life Span (partial credit)
Internal Medicine
38:160 Geriatrics Seminars
Nursing
96:120 Normative and Psychopathological Aspects of Aging
96:121 Nursing Care of the Incontinent Elderly: Gerontological Client
56:251 Biophysical Concepts in Human Aging
Physical Education
27:112 Physical Activity and Aging
Recreation Education
164:148 Contemporary Issues in Recreation and Leisure
104:102 Aging and Leisure Studies
Religion
32:183 Introduction to Biomedical Ethics (partial credit)
32:181 Death and Dying
Sociology
34:136 Social Psychology of Aging
34:230 Sociology of the Family (partial credit)
24:125 Aging and Human Development
Social Work
42:193 Aging and Social Work
42:185 Social Policy and the Elderly
42:222 Social Policy Issues in Health Care (partial credit)
43:291 Human Behavior: Selected Aspects
Speech Pathology
52:506 Seminar on Communication and Aging

American Studies Program

Director: Richard P. Horwitz

Professors: Wayne Franklin (English/American Studies); Joan Reitze (Sociology); H.E. Storey (American Studies/English); Peter Neustadt (English/African-American Studies). Associate professor: Richard P. Horwitz (American Studies)

American Studies
61:123 Public Economic Security Programs
72:280 Topic Seminar in Counselor Education
Dentistry
112:145 Introduction to Geriatric Dentistry
Health and Hospital Administration
46:105 Long Term Care Administration
Home Economics
73:111 Individual and Family Development: Life Span (partial credit)
Internal Medicine
38:160 Geriatrics Seminars
Nursing
96:120 Normative and Psychopathological Aspects of Aging
96:121 Nursing Care of the Incontinent Elderly: Gerontological Client
56:251 Biophysical Concepts in Human Aging
Physical Education
27:112 Physical Activity and Aging
Recreation Education
164:148 Contemporary Issues in Recreation and Leisure
104:102 Aging and Leisure Studies
Religion
32:183 Introduction to Biomedical Ethics (partial credit)
32:181 Death and Dying
Sociology
34:136 Social Psychology of Aging
34:230 Sociology of the Family (partial credit)
24:125 Aging and Human Development
Social Work
42:193 Aging and Social Work
42:185 Social Policy and the Elderly
42:222 Social Policy Issues in Health Care (partial credit)
43:291 Human Behavior: Selected Aspects
Speech Pathology
52:506 Seminar on Communication and Aging

American Studies Program

Director: Richard P. Horwitz

Professors: Wayne Franklin (English/American Studies); Joan Reitze (Sociology); H.E. Storey (American Studies/English); Peter Neustadt (English/African-American Studies). Associate professor: Richard P. Horwitz (American Studies)


In its course work and for its majors, the American Studies Program provides an interdisciplinary introduction to American culture, past and present. The program helps students and critics of culture acquire a broad familiarity with the dynamics of cultural experience. Students may combine related departmental courses in American experience with the interdisciplinary courses and seminars of the American Studies Program to explore aspects of life in the United States such as popular and high culture, institutions, values, social processes, artifacts, and the nature and contributions of subcultures.

Undergraduate Program

Bachelor of Arts
The B.A. degree in American studies stresses broad training in cultural analysis and cumulative knowledge rather than specific preprofessional or vocational training. It also provides preparation for entry into career in business, education, government, journalism, or law, for advanced studies in the humanities, the social sciences, theology, or business or for professional studies in law or medicine.

With his or her advisor's assistance and approval, a student choosing American studies develops an individual plan of study, combining courses from cognate departments and programs with Integrative American Studies Program courses to explore a common period, topic, theme, or problem in American culture and experience. The major usually consists of 12 courses normally totaling 36 semester hours and including four courses (12 semester hours) in American and/or African-American World Studies, two courses (6 semester hours) in American history, and six courses (18 semester hours) in cognate departments and/or American Studies. The courses in American and/or African-American World Studies usually include:

Required courses:
1. 6 American Values
2. 6 Three Topics in American Culture

3. 3 s.h.
Two of the following:  
45.2 American Issues 3 s.h.  
45.4 Women in American Culture 3 s.h.  
45.4 Family and Sex Roles 3 s.h.  
45.5 Media Studies 3 s.h.  
45.6 Regional Studies 3 s.h.  
45.7 Sex, Race, and Ethnicity 3 s.h.  
45.9 American Music 3 s.h.  
45.10 Readings in American Studies 3 s.h.  
45.12 Childhood and Youth in America 3 s.h.  
45.13 Aging in America 3 s.h.  
45.16 Visual Arts and American Culture 3 s.h.  
49.10 American Communities: The  
Conundrum Strip 3 s.h.  
45.16c Autobiography and  
American Culture 3 s.h.  
45.18c Popular Culture 3 s.h.  
129.60 Introduction to  
Afro-American Studies 3 s.h.  
129.61 Introduction to  
Afro-American Culture 3 s.h.  

General education courses in historical  
perspectives, humanities, literature, and  
social sciences provide relevant  
preparation for the American Studies major;  
while American Lives is especially  
recommended.

Honor's  
Honor's candidates in American studies must take 45.05 Turning Points In American Culture and 45.15 Honor's Project. With his  
her Honor's Project, the student in 45.16c  
defines a research project on an American  
American Community as a study of the  
research, and permits the results of the research in a  
enumerary essay.

Minor  
Students interested in a minor in American studies should consult members of the staff. The minor requires a minimum of 15 semester hours of credit in American  
American Studies. At least 12 of the 15 semester  
hours must be taken at The University of  
Iowa in courses numbered 45.100 and  
above. 45.30 also may count toward this  
requirement.

Graduate Programs  
Master of Arts  
The M.A. degree in American studies may be a terminal degree or a degree  
preparation to the Ph.D. in American studies or a traditional discipline.  
The M.A. program in American studies includes 12 courses normally totaling 36  
semester hours. Requirements include:  
2 courses in History and Practice in  
American Studies 6 s.h.

Three other courses or seminars in  
american studies or African-American  
World studies.

Two courses in American history (unless  
already taken as an undergraduate).  
Six or eight additional courses selected  
in relation to a topic or period of cultural  
history. These courses may be grouped  
to address more than one topic or  
problem, but must be chosen from  
more than one discipline or department.  
Satisfactory performance on a  
comprehensive examination on course  
work and basic concepts.

The M.A. also may be taken with thesis,  
in which case 30 semester hours of course  
work is the required minimum. Students  
should consult the program for details.  
A joint program leading to the M.A. degree  
in American studies and the J.D. degree  
from the College of Law provides a broad  
cultural context for the study and practice  
of law. Similar joint programs can be  
arranged in other professional fields,  
including social work and journalism.

Doctor of Philosophy  
The Ph.D. program in American studies  
requires a minimum of 72 semester hours of course work, preparing the candidate in  
four areas: American studies courses and seminars in interdisciplinary approaches  
and methods; substantial course work in one or more major fields; and courses in  
two or more minor fields,  
including in tools or skills.  
Although permitted considerable flexibility in  
planning a program, the American  
American studies candidates must meet certain basic  
requirements: One or all students directly  
involved in course work and reading, in the cultural diversity of  
American life and experience. Some  
course work is required in areas such as  
African-American World studies and women's  
studies; familiarity with race and gender  
issues will be expected specifically on the  
candidate's end. A second requirement is  
that each program include a basic  
reading of one period of American  
cultural history as defined by the student's  
particular interests. Hence, history is  
considered either background to or the  
actual content of cultural programs.  
The candidate normally takes 45.00  
Theory and Practice in American Studies  
both semesters of the first two years  
and may include 45.530 Special  
Graduate Projects among the two or three  
other courses taken in the area of  
interdisciplinary approaches and methods  
in American studies. Instead of a written  
examination in this area, the student  
prepares a position paper or  
interdisciplinary essay.

The student is required to take, six, or seven  
courses (15-21 semester hours), including  
tutorials, in each of the major areas.  
Four-hour written examinations on each of  
the major areas, together with the  
interdisciplinary position paper or essay,  
provide the basis of the candidate's final  
final examination.  
The student also takes three or four  
courses, organized around a specific topic  
or subdiscipline, as one or two minor  
areas.

Instead of a written final examination, the  
candidate prepares an annotated  
book-length study in the minor field for  
evaluation by a member of the comprehensive examination committee.  
Candidates who have already submitted an  
annotated bibliography for a course have  
the option of replacing the bibliography  
with a member written examination.  
Either course is administered on an  
abbreviated reading list.

The tools and skills area or minor field  
must include at least two courses or  
5 semester hours of graduate-level work  
in Iowa in foreign language, filmmaking,  
museum work, linguistics, computer  
science, statistics, etc. In addition, up to  
6 semester hours in thesis research and  
writing, teaching methods, and/or courses  
on American studies topics outside the  
minor area may be included in this area.  
The final requirement for the Ph.D. is  
American studies is presentation of an  
acceptable thesis on a topic not-to be  
investigation concerns more than one field  
or discipline. The candidate may petition  
the candidate's advisor to be a second  
area of focus. With the concurrence of  
the advisor, the candidate is considered  
and the student is granted a graduate  
student status. The candidate is granted  
certificates or degrees in the social sciences,  
government, or business also may be  
accepted. Course credit in is allowed when a research  
component is included.

Internships  
Qualified graduate students in American studies can arrange internships with the  
State Historical Society of Iowa, the National  
Division of Historic Preservation, The  
University of Iowa Museum of Art, the Iowa  
Department of Natural Resources, the  
Herbert Hoover National Historic Site,  
the Peoria Museum, Davenport. Other  
internships in Chicago can be negotiated  
with Hull House, Newberry Library, Church  
Council of Chicago, Art Institute of Chicago,  
Institute of American Agricultural History, and  
The National Training Institute. Candidates conducting research during such on-the-job training  
may apply academic credit. Candidates  
interested in social agencies, state or  
government, or business also may be  
accepted. Course credit in is allowed when a research  
component is included.

Courses  
Primarily for Undergraduates  
45.30 Comparative Education Internship 3 s.h.  
45.30A American Values 3 s.h.  
45.53B Internship in American studies via representative tools.
Undergraduate Program

A Bachelor of Arts in anthropology provides a solid foundation for careers in anthropology. Course work focuses on courses involving work with persons from cultures and subcultures different from one's own. These fields include the health care professions, law, economics, business, political science and government, social work, international affairs, and education. The major requires at least 36 semester hours of course work in anthropology, including:

115.3 Introduction to the Study of Culture and Society 3-4 hrs.
115.12 Introduction to Prehistory 3 hrs.
125.13 Human Origins 3 hrs.
125.14 Language and Human Reliabity 3 hrs.

In addition, each student must take one course in an anthropology (area or topical), one course in ethnography, and one course in social institutions. The remaining semester hours should be selected in consultation with the advisor.

Anthropology

Chair: Thomas H. Doolan

Associate professors: Michael Chiriboga, Nora France, Malcolm W. McSweeney, Joseph M. Mehrer, Joseph N. Simeon, Joseph A. Simeon

Assistant professors: John K. Fisher, Tripp R. Foster, James W. P. Simeon

Adjunct professors: Duane C. Anderson

Dean: Charles W. Pederson

All human cultures, whether historical or contemporary, simple or complex, are part of anthropological study. Anthropology provides a framework for understanding human beings' place in the natural world; their evolutionary background and development; the organization of social life; and cultural and symbolic systems; the evolution of cultures and societies; and the interactions among society, personality, and shared values of thinking and feeling.

For Undergraduates and Graduates

40.103 Ancestral موقعات site in American Studies 4 hrs.
40.112 American Folk Literature 3 hrs.
40.113 American Folk Literature II 3 hrs.
40.114 American Folk Literature and Culture of America Before 1800 3 hrs.
40.132 American Folk Literature and Culture of America Before 1800 3 hrs.
40.152 American Folk Literature and Culture of America Before 1800 3 hrs.
40.162 American Folk Literature and Culture of America Before 1800 3 hrs.
40.172 American Folk Literature and Culture of America Before 1800 3 hrs.
40.182 American Folk Literature and Culture of America Before 1800 3 hrs.
40.192 American Folk Literature and Culture of America Before 1800 3 hrs.
40.104 American Folk Literature and Culture of America Before 1800 3 hrs.
40.114 American Folk Literature and Culture of America Before 1800 3 hrs.
40.122 American Folk Literature and Culture of America Before 1800 3 hrs.
40.132 American Folk Literature and Culture of America Before 1800 3 hrs.
40.142 American Folk Literature and Culture of America Before 1800 3 hrs.
40.152 American Folk Literature and Culture of America Before 1800 3 hrs.
40.162 American Folk Literature and Culture of America Before 1800 3 hrs.
40.172 American Folk Literature and Culture of America Before 1800 3 hrs.
40.182 American Folk Literature and Culture of America Before 1800 3 hrs.
40.192 American Folk Literature and Culture of America Before 1800 3 hrs.
40.104 American Folk Literature and Culture of America Before 1800 3 hrs.
40.114 American Folk Literature and Culture of America Before 1800 3 hrs.
40.122 American Folk Literature and Culture of America Before 1800 3 hrs.
Graduate Programs

Master of Arts

The M.A. program is general in nature, designed to prepare the student to teach with any aspect of anthropology at an introductory level. The department offers the M.A. degree with or without thesis. The program without thesis specifies the following requirements for admission to the Ph.D. program.

The minimum number of semester hours required for the M.A. with thesis may vary from 30 to 36, depending upon the student's previous anthropological training. The thesis portion of the program must be carried out under the supervision of a faculty advisor. The thesis program requires at least 36 semester hours of graduate work. The department also offers a 36-semester-hour M.A. degree without thesis in anthropology with a concentration in Museum Training. The following are the core requirements at the M.A. level:

113:240 Seminar: Social Anthropology
113:307 Seminar: Anthropological Theory
These four courses:
113:171 Anthropological Linguistics
113:367 Seminar: Archeological Theory and Method
113:380 Seminar: Biological Anthropology
113:312 Anthropological Data Analysis
Two courses from the following subject areas:
Social institutions
Language and culture
Upper course in the Department of Linguistics
Anthropology
No more than 9 semester hours of courses outside of anthropology and no more than 3 semester hours of independent study may be applied toward the M.A. degree requirements in anthropology.

Students with previous training in anthropology, whatever their undergraduate major, may petition for permission to waive any part of the above distribution requirements.

M.A. Program in Anthropology with a Concentration in Museumology

In cooperation with the Museum of Natural History, the Department of Anthropology offers a program of study leading to the M.A. degree in anthropology with a concentration in museumology. Details of exhibit preparation and the general operational procedures of small science museums form part of the student's training. Further information on this program may be obtained from the Department of Anthropology or the Museum of Natural History.

Doctor of Philosophy

Graduate training in anthropology at the Ph.D. level is designed to lead to professional competence in both scholarly research and teaching. The Ph.D. degree represents a balance between general competence in all the subfields of anthropology obtained at the M.A. level and professional specialization in one. Students at The University of Iowa currently may select specializations including: archeology, linguistic anthropology, and social-cultural anthropology. Training in a specialization is guided by a Ph.D. committee composed of members of the faculty competent in the particular areas and topics chosen by the student. The only limitations in program offerings are based on the faculty's expertise in given areas or the feasibility of arranging for training and guidance.

Three are the requirements:

At least 72 semester hours of graduate course work;
Demonstration of a reading knowledge of one foreign language;
Mastery of a relevant research skill (for example, fluency in a foreign language or proficiency in 'branch of mathematics, logic, computer programming, geology, or paleontology').

Ethnographic or archeological specialization in a major geographic area (for example, North America, Mesoamerica, Oceania, Southeast Asia, the Caribbean, Europe), approved by the student's advisory committee.

Specialization in a major and minor topical area;
A written comprehensive examination in the student's area of specialization; and
Preparation and oral defense of a dissertation.

The major topical area is the area of theoretical concentration and orientation for the dissertation. Kinds of topics that may serve either as major or minor areas in sociocultural or linguistic anthropology include: technology and social organization, ethnology, economic anthropology, language and culture, religion, cultural ecology, and urban anthropology. Examples of possible major topical areas for students in archaeology include: settlement archeology, environment, environmental anthropology, and dating methods.

The comprehensive examination ordinarily is taken when the student's course work is completed or nearly completed, after the language and research skills requirements have been satisfied, and before the student begins field work. All doctoral candidates are required to carry out original anthropological research. Ordinarily, students conduct field work in the basis for their dissertation; occasionally, however, a research proposal may be carried out using only documents, collections, or other non-field materials.

All doctoral candidates are required to be adequately trained in techniques of anthropological primary data in archaeological or ethnographic field research.

Admission

Applicants for admission to the graduate program in anthropology are considered regardless of the field of their previous training. An applicant with an M.A. degree in another discipline must seek admission as a first-year graduate student. Admission to the department's graduate program may be either the M.A. or Ph.D. level. However, all admission to the Ph.D. program depends on successful completion of departmental requirements.

Any student with an M.A., with thesis may apply for admission to the Ph.D. program. A student admitted with an M.A. in anthropology from another institution may proceed directly to a specialized Ph.D. program. Admission to the Ph.D. program is limited to students who wish to conduct research in an area of interest and competence represented among the departmental faculty.

Applicants for admission to the graduate program must meet the general admission requirements of the Graduate College (see "Graduate College" section of the Catalog). They will be required to submit a completed University application form; transcripts of all previous undergraduate and graduate school work; three letters of recommendation from previous instructors; and the candidate's potential for graduate training; scores from the aptitude portion of the Graduate Record Examination (GRE) Aptitude Test; and at least one typewritten example of previous work (for example, a term paper or an independent experiment). An applicant with an M.A. degree from another university must submit a copy of thesis or his master's thesis, an applicant who earned an M.A. without thesis or whose thesis is not included in his undergraduate record must submit copies of three papers completed in previous graduate work.

It is desirable that the applicant have at least a 3.0 grade-point average. However, applicants with lower grade-point averages may be admitted with conditional status if other criteria indicate potential for graduate work.

Assistantships

Most graduate students receive financial aid in the form of teaching and research assistantships. Application for an award should be made directly to the chair of the Department of Anthropology.
Undergraduate Programs

Bachelor of Arts

The B.A. candidate in art or art history must earn at least 74 semester hours of credit in non-art courses, but may apply no more than 86 non-art semester hours toward the total of 124 semester hours required for the degree. 

Course titles originating in the School of Art and Art History may not be counted toward the general liberal arts course and hour requirements.

Art and art history majors in the B.A. degree program may waive 3 semester hours of the historical perspectives General Education Requirement, those in the B.F.A. degree program may waive 6 semester hours of historical perspectives General Education Requirement.

Studio Emphasis

The B.A. degree with studio emphasis requires the following courses and credits in art:

Art History

Two courses (selected from 1183, 1185, 1168, and 1186) 6 s.h.

Two additional courses exclusive of those courses listed above 6 s.h.

1A:1-1 College Art 2 s.h.

1A:2-3 Basic Drawing 2 s.h.

1A:4-4 Basic Design 2 s.h.

Any two of the following courses:

1C:60 Ceramics I 2 s.h.

1G:84 Introduction to Metallurgy 2 s.h.

1J:200 Multimedia 2 s.h.

1N:15 Undergraduate Sculpture I 2 s.h.

Two beginning courses, one each from two different studio arts not taken to satisfy the requirements above 4 s.h.

Beginning courses in areas not listed above

Design

1D:21 Problems in Design I 3 s.h.

1D:22 Problems in Design II 3 s.h.

1D:25 Lettering I 3 s.h.

1D:26 Graphic Design I 3 s.h.

Drawing

1F:7 Life Drawing I 3 s.h.

Painting

1K:9 Painting I 3 s.h.

1K:10 Painting I 3 s.h.

Photography

1L:34 Beginning Photography 3 s.h.

Printmaking

1M:51 Undergraduate Printmaking I 3 s.h.

Fiber Art

1P:191 Printing and Dyeing 3 s.h.

1P:192 Weaving 3 s.h.

Electives to bring the total number of credits in history of art, studio, or art education combined to a minimum of 38 semester hours.

No more than 50 semester hours of credit in art courses that the school sees will be counted toward the total of 124 semester hours required for the degree.

Transfer students majoring in studio must complete at The University of Iowa a minimum of 3 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.

Undergraduate transfer students majoring in studio must, at their first registration, show a portfolio to a faculty review committee, which will determine the student's placement in, or exemption from, the sequence of basic studio courses.

Art History Emphasis

Major requirements for the B.A. degree with an emphasis in art history are 9-12 semester hours of studio courses, as advised, and 6 semester hours (two courses) from 1H:3, 1H:5, 1H:16, and 1H:16, plus 18 semester hours of intermediate and advanced art history.

Electives must raise the total of art courses to a minimum of 38 semester hours and may raise the total to a maximum of 50 semester hours. Art courses taken beyond this level do not count toward the B.A. degree.

Honor students in art history must maintain a minimum grade point average in art history of 3.5, and must complete 6 semester hours (beyond the 15 semester hours of intermediate and advanced art history) in a seminar and a written thesis, for 3 semester hours each credit.

Non-art credits must include two or more semesters of a second foreign language, and at least 12 semester hours in at least three disciplines, including two of the following: anthropology, classics, drama, history, language, literature, music, philosophy, religion, or sociology.

Transfer students planning to major in art history should meet with the professor in charge of art history to discuss the student's required minimum registration for courses in art history and studio.

Art Education

Students seeking the B.A. degree in art education may choose either the studio or art history emphasis, satisfying the requirements described above and, in addition to the general requirements for teacher certification (see the "College of Education" section of the Catalog), must satisfy three specific requirements:

1E:196 Concepts in Art Education 3 s.h.

1E:198 Art Education Studio 3 s.h.

7E:143 Methods Art 3 s.h.

7E:145 Advanced Methods Art 3 s.h.

7E:157 Seminar: Curriculum and Studio Practice 3 s.h.

7E:172 Lab Practice in Elementary Education 6 s.h.

7E:173 Observation and Lab Practice in Secondary School 6 s.h.

The following course is elective:

1E:230 Art Education and the Museum 3 s.h.

Bachelor of Fine Arts (studio only)

Prospective B.F.A. students must apply to enter the program upon completion of at least one semester or work in the studio area of concentration, but before completion of 50 semester hours in art.

The B.F.A. requires that the 124 semester hours needed to graduate must include 62 semester hours of credit from courses taken outside the School of Art and Art History and 62 semester hours of credit in School of Art and Art History courses. In addition to the general education requirements (see the "College of Liberal Arts" section of the Catalog) and major requirements listed above, the B.F.A. degree with studio emphasis, the B.F.A. candidate must complete three courses in a studio area of concentration beyond the fundamental course, and must complete at least the second semester of coursework in each of two additional studio areas. Art education majors in the B.F.A. program...
Art and Art History/LIBERAL ARTS  63

must meet the same pitch certification requirements as those in the B.A. program. B.F.A. candidates may waive 6 semester hours of the historical perspectives General Education Requirement.

Graduate Programs

Master of Arts in Art History

As M.A. student in art history is expected to acquire a broad general knowledge of art history as an academic and humanistic discipline; become familiar with major periods and monuments of world art; and gain proficiency in techniques of research within selected areas.

Specific requirements include:

- A B.A. or B.F.A. degree, with at least 18 semester hours of undergraduate work in art history.
- A minimum of 30 semester hours of graduate-level studio work, with a grade-point average of 3.0 or higher.
- At least a one-semester/interim course (100-level course) completed with at least a 3.0 grade-point average in each of the following areas of art history: Ancient (to 300 A.D.), Medieval (300-1500), Renaissance to Baroque (1600-1750), Eighteenth Century to Modern, Oriental, and Pre-Columbian.
- Course distribution for the M.A. in art history as follows:
  - H1294 Seminar: Methodology of Art History and Criticism 3 s.h.
  - Two other art history seminars with different instructors 4.5 s.h.
  - Additional art history courses 12-15 s.h.
  - Studio 0-6 s.h.
  - Courses outside the school 0-0.5 s.h.

Students with little or no undergraduate studio training are required to take two courses in different studio fields; students with substantial undergraduate studio training are exempt from the graduate studio requirement.

A student preparing to teach in both the art history and studio areas take 12-18 semester hours of studio course work, with a minimum of 9 semester hours in one subject, in addition to the undergraduate requirement for a studio major, and also must satisfy the drawing requirement. Studio courses may be taken on a satisfactory/unsatisfactory basis.

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

Within the first 20 semester hours of graduate work, the M.A. candidate is expected to demonstrate the ability to read art historical writings in an appropriate foreign language, namely German or French, through other languages, including Oriental languages, may be acceptable. This requirement may be fulfilled by an examination by the appropriate University of Iowa language department satisfactory completion of the first semester of a Ph.D. language reading course, or satisfactory completion of at least a 3.3 grade-point average of the fourth semester of a college or university language course.

Qualification for the M.A. degree requires a comprehensive written examination covering the entire field of art history.

The student must prepare either a written thesis, for which at least 3 semester hours of credit may be allowed, or a substantial research paper (approximately 20-40 pages).

Master of Arts in Studio

The school offers the M.F.A. degree in studio with a major in ceramics, textiles, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The degree requires:

- The B.A. or B.F.A. degree equivalent to that offered at The University of Iowa (undergraduate deficiencies, if any, may be made up concurrently with, but are in addition to, graduate requirements). A minimum of 36 semester hours of graduate work, including at least 12 semester hours in a major studio subject, a total of at least 21 semester hours in studio courses, 3 semester hours in the history and theory of art, and up to 8 semester hours of courses outside art and art history.

- Clearance for M.A. candidacy by faculty review.

- Studio and written theses.

Students majoring in art history courses may elect to take art history courses on the satisfactory/unsatisfactory basis.

Graduate students who have not had drawing at The University of Iowa must take at least one drawing course during the first year.

A student preparing to teach in both the studio and art history areas may complete an art history major of 15 semester hours, including H1294 Seminar: Methodology of Art History and Criticism, and one studio semester. Three hours are in addition to the University's undergraduate requirement for an art history major (except for the second foreign language), in combination with the undergraduate hours, must satisfy the distribution requirement in art history.

Master of Arts in Art Education

Requirements for the M.A. in art education are:

- The B.A. or B.F.A. in art equivalent to that offered at The University of Iowa.

- Teaching certification in art:
  - Completion of 36 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 semester hours in graduate seminars in art education and 6 semester hours to be specified after the student completes the program.

- An oral and/or written examination in art education:
  - A written thesis based on research in art education or art history in a studio theme, accompanied by a brief statement of the student's technical, aesthetic, and psychological approach and, as in the M.A. degree in studio, clearance for M.A. candidacy by faculty review.

Arts education majors who elect to do a studio thesis and who have not had drawing at The University of Iowa are required to take at least one drawing course, selected from the school's regularly scheduled drawing courses, during their first year in residence.

Arts education majors may elect to take art history courses on the satisfactory/unsatisfactory basis.

Master of Fine Arts (Studio Only)

The school offers the M.F.A. degree with a major in ceramics, design, drawing, metalworking and jewelry, multimedia, and video art, painting, photography, printmaking, or sculpture. The M.F.A. candidate must have an M.A. degree in art equivalent to that offered at The University of Iowa, and a minimum of 60 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 9 semester hours in a minor studio field, 6-semester hours in art history and theory of art, and 8 semester hours in courses originating outside the school, clearance for M.A. candidacy by faculty review, and studio and written theses. Thesis credits earned in an M.A. program are not applicable toward the a.F.A. credit requirement.

Doctor of Philosophy (Art History Only)

The Ph.D. student is expected to have a broad general knowledge of art history and to acquire detailed knowledge of at least one specialization. Art history is an understanding of artistic development, and a knowledge of research methods for certain specialized areas of world art to be selected by the student in consultation with appropriate faculty members in the school.

No more than 36 semester hours of credit earned in any M.A. program may be applied...
The Program in Asian Studies

This program is designed to introduce students to the South Asian cultures, both modern and traditional, and to contemporary political and social problems in Asia. Courses are taught by Asian specialists in many departments. Students are encouraged to take courses in a number of disciplines and in more than one area of Asia.

Students in the program in Asian Studies major must complete 30 semester hours of courses in Asia, distributed as follows:
- 39.10-11 Second-Year Chinese 12 s.h.
- 39.33-34 Second-Year Hindi 8 s.h.
- 39.23-24 Second-Year Sanskrit 6 s.h.

At least one course on the history of the area whose language they are studying is required:
- 39.131 History of Ancient and Traditional India 3 s.h.
- 39.134 Imperialism and Modern India 3 s.h.
- 39.153 Traditional China 3 s.h.
- 39.154 China: Opium War to Mao 3 s.h.
- 39.153 Premodern Japan 3 s.h.
- 39.154 Modern Japan 3 s.h.

Other courses on Asia 100-level or above for those taking Chinese or Japanese 15 s.h. for those taking Hindi 25 s.h. for those taking Sanskrit 25 s.h.

Many students find a Program in Asian Studies major to be an excellent way to gain a major in history, political science, anthropology, archaeology, or another discipline.

Chinese, Hindi, Japanese, or Sanskrit

This program is intended for students who want to achieve an ability to speak, understand, read, and write Chinese, Hindi, Japanese, or to read Sanskrit, and to gain knowledge of the literatures of China, Japan, or South Asia. Majors are required to complete advanced courses distributed as follows:

For students of Chinese:
- 39.10-11 Second-Year Chinese 12 s.h.
- 39.10-16 Third-Year Chinese 12 s.h.
- 39.141 Chinese Literature: Poetry 1 s.h.
- 39.142 Chinese Literature: Prose 1 s.h.

For students of Hindi:
- 39.33-34 Second-Year Hindi 8 s.h.
- "39.104-105 Third-Year Hindi 6 s.h.
- 39.125-126 Indian Literature 6 s.h.
- 39.127 Indian Devotional Literature in Translation 3 s.h.

*With the approval of the major advisor, students may substitute 3 semester hours of 100-level courses in South Asian studies for students of Japanese:
- 39.105-106 Third-Year Japanese 12 s.h.
- 39.141 Traditional Japanese Literature in Translation 6 s.h.
- 39.142 Modern Japanese Fiction in Translation 3 s.h.

For students of Sanskrit:
- 39.23-24 Second-Year Sanskrit 6 s.h.
- 39.104-105 Third-Year Sanskrit 6 s.h.
- 39.135-136 Indian Literature 6 s.h.
- 39.163 Indian Religious Texts 3 s.h.

*With the approval of the departmental advisor, students may substitute 6 semester hours of 100-level courses in South Asian studies for third-year Sanskrit.

Students are urged to fulfill the General Education Requirement in historical perspectives by completing 165-56 Civilizations of Asia.

Minors

Minors in the languages offered by the department and in the Program in Asian Studies are also available. See the Departmental office for more information.

Honors

Students with a grade-point average of 3.2 or above are encouraged to enroll in the College of Liberal Arts Honors Program. With the permission of the departmental chair and a faculty sponsor selected from among Asian specialists in any department, the student will register for 39.101 Honors Tutorial and 39.102 Senior Honors Thesis. To receive a B.A. with honors, the student must complete an acceptable thesis based on original research in an appropriate area of Asian studies.

Programs

Master of Arts in Asian Civilization

The graduate program in Asian civilization provides preparation for doctoral study in a variety of disciplines and may be of interest to students with non-academic 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 Civilization requires a minimum of 30 semester hours in approved graduate course work and the preparation of a master's essay or thesis using Asian-language sources under the supervision of a faculty member. The student's course of study is planned in consultation with a faculty advisor, but normally will focus on one Asian culture (Chinese, Japanese, or South Asian) and include substantial work in one disciplinary field complemented by an appropriate selection of courses in other fields.

Beginning and intermediate level courses in the language of a student's chosen cultural area, however, may not be counted toward the semester hour total. All students must maintain a 3.0 minimum grade point average and are expected to fulfill the general requirements of the Graduate College.

By the end of their final semester of residence, students are expected to demonstrate, either by departmental examination or the successful completion of courses at the appropriate level, advanced competence in Chinese, Japanese, Hindi, or Sanskrit, defined generally as corresponding to the fourth-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 2.5 is required for conditional admission. 3.0 for regular admission. In addition, applicants must submit a writing sample—such as a term paper, seminar paper, or graduate thesis—to the Department of Asian Languages and Literature. All non-foreign and foreign applications for graduate awards for the following academic year are due February 1. Applications for financial assistance are due by March 1. Candidates should have the Graduate Record Examination (GRE) Aptitude Test completed, since an admission decision usually cannot be made until scores are received.

Library Facilities

Since 1963 the University Library has been purchasing all books on Asia issued by major publishers in Western languages. The Library's Asian collections includes approximately 75,000 books, periodicals, and other materials. It is particularly strong in literature, history, etc., and philosophy, and it is constantly being augmented.

Courses

Undergraduate Language

First-Year Chinese: Introduction to Mandarin 4 s.h.
- 260 Chinese I 4 s.h.

Introduction to Mandarin with some introduction to writing character Open to freshmen (offered in Spring semester in various years.)

- 260 Chinese II 4 s.h.
Further study of spoken Mandarin with more exposure to written language (offered in fall semester in various years.)

- 260 Business Chinese I 3 s.h.

In addition, students have to learn several years of Chinese (spoken, written, and basic grammar and vocabulary) and also knowledge of the skills needed to carry on simple conversations.

Liberal Arts/Asian Languages and Literature
Asian Languages and Literature/LIBERAL ARTS

353-354 First-Year Japanese 6 s.h.
Japanese reading and conversational practice in the cultural context.

355-356 First-Year Chinese 6 s.h.
Basic reading and conversational practice in the cultural context.

357-358 Second-Year Chinese 6 s.h.
Advanced reading and conversational practice in the cultural context.

359-360 Second-Year Japanese 6 s.h.
Advanced reading and conversational practice in the cultural context.

361-362 Third-Year Japanese 6 s.h.
Advanced reading and conversational practice in the cultural context.

363-364 Third-Year Chinese 6 s.h.
Advanced reading and conversational practice in the cultural context.

Language Courses for Graduate Students

353-354 Beginning Chinese for Graduate Students 6 s.h.
Introduction to Chinese for graduate students.  See 353. Offered fall and spring semesters. (353) or 353-354.

355-356 Beginning Chinese for Graduate Students 6 s.h.
Introduction to Chinese for graduate students.  See 355. Offered fall and spring semesters. (355) or 355-356.

357-358 Beginning Chinese for Graduate Students 6 s.h.
Introduction to Chinese for graduate students.  See 357. Offered fall and spring semesters. (357) or 357-358.

359-360 Beginning Chinese for Graduate Students 6 s.h.
Introduction to Chinese for graduate students.  See 359. Offered fall and spring semesters. (359) or 359-360.

361-362 Beginning Chinese for Graduate Students 6 s.h.
Introduction to Chinese for graduate students.  See 361. Offered fall and spring semesters. (361) or 361-362.

Japanese Literature

353-354 Beginning Japanese Literature for Graduate Students 6 s.h.
Introduction to Japanese literature for graduate students.  See 353. Offered fall and spring semesters. (353) or 353-354.

355-356 Beginning Japanese Literature for Graduate Students 6 s.h.
Introduction to Japanese literature for graduate students.  See 355. Offered fall and spring semesters. (355) or 355-356.

357-358 Beginning Japanese Literature for Graduate Students 6 s.h.
Introduction to Japanese literature for graduate students.  See 357. Offered fall and spring semesters. (357) or 357-358.

359-360 Beginning Japanese Literature for Graduate Students 6 s.h.
Introduction to Japanese literature for graduate students.  See 359. Offered fall and spring semesters. (359) or 359-360.

361-362 Beginning Japanese Literature for Graduate Students 6 s.h.
Introduction to Japanese literature for graduate students.  See 361. Offered fall and spring semesters. (361) or 361-362.

Japanese Art

353-354 Beginning Japanese Art for Graduate Students 6 s.h.
Introduction to Japanese art for graduate students.  See 353. Offered fall and spring semesters. (353) or 353-354.

355-356 Beginning Japanese Art for Graduate Students 6 s.h.
Introduction to Japanese art for graduate students.  See 355. Offered fall and spring semesters. (355) or 355-356.

357-358 Beginning Japanese Art for Graduate Students 6 s.h.
Introduction to Japanese art for graduate students.  See 357. Offered fall and spring semesters. (357) or 357-358.

359-360 Beginning Japanese Art for Graduate Students 6 s.h.
Introduction to Japanese art for graduate students.  See 359. Offered fall and spring semesters. (359) or 359-360.

361-362 Beginning Japanese Art for Graduate Students 6 s.h.
Introduction to Japanese art for graduate students.  See 361. Offered fall and spring semesters. (361) or 361-362.

Japanese Film

353-354 Beginning Japanese Film for Graduate Students 6 s.h.
Introduction to Japanese film for graduate students.  See 353. Offered fall and spring semesters. (353) or 353-354.

355-356 Beginning Japanese Film for Graduate Students 6 s.h.
Introduction to Japanese film for graduate students.  See 355. Offered fall and spring semesters. (355) or 355-356.

357-358 Beginning Japanese Film for Graduate Students 6 s.h.
Introduction to Japanese film for graduate students.  See 357. Offered fall and spring semesters. (357) or 357-358.

359-360 Beginning Japanese Film for Graduate Students 6 s.h.
Introduction to Japanese film for graduate students.  See 359. Offered fall and spring semesters. (359) or 359-360.

361-362 Beginning Japanese Film for Graduate Students 6 s.h.
Introduction to Japanese film for graduate students.  See 361. Offered fall and spring semesters. (361) or 361-362.

Literature Courses

353-354 Asian Literatures 6 s.h.
Asian literatures in the cultural context.  See 353. Offered spring semesters. (353) or 353-354.

355-356 Asian Literatures 6 s.h.
Asian literatures in the cultural context.  See 355. Offered spring semesters. (355) or 355-356.

357-358 Asian Literatures 6 s.h.
Asian literatures in the cultural context.  See 357. Offered spring semesters. (357) or 357-358.

359-360 Asian Literatures 6 s.h.
Asian literatures in the cultural context.  See 359. Offered spring semesters. (359) or 359-360.

361-362 Asian Literatures 6 s.h.
Asian literatures in the cultural context.  See 361. Offered spring semesters. (361) or 361-362.

353-354 Japanese Literatures 6 s.h.
Introduction to Japanese literatures.  See 353. Offered fall and spring semesters. (353) or 353-354.

355-356 Japanese Literatures 6 s.h.
Introduction to Japanese literatures.  See 355. Offered fall and spring semesters. (355) or 355-356.

357-358 Japanese Literatures 6 s.h.
Introduction to Japanese literatures.  See 357. Offered fall and spring semesters. (357) or 357-358.

359-360 Japanese Literatures 6 s.h.
Introduction to Japanese literatures.  See 359. Offered fall and spring semesters. (359) or 359-360.

361-362 Japanese Literatures 6 s.h.
Introduction to Japanese literatures.  See 361. Offered fall and spring semesters. (361) or 361-362.

353-354 Indian Literatures 6 s.h.
Introduction to Indian literatures.  See 353. Offered fall and spring semesters. (353) or 353-354.

355-356 Indian Literatures 6 s.h.
Introduction to Indian literatures.  See 355. Offered fall and spring semesters. (355) or 355-356.

357-358 Indian Literatures 6 s.h.
Introduction to Indian literatures.  See 357. Offered fall and spring semesters. (357) or 357-358.

359-360 Indian Literatures 6 s.h.
Introduction to Indian literatures.  See 359. Offered fall and spring semesters. (359) or 359-360.

361-362 Indian Literatures 6 s.h.
Introduction to Indian literatures.  See 361. Offered fall and spring semesters. (361) or 361-362.

353-354 Indonesian Literatures 6 s.h.
Introduction to Indonesian literatures.  See 353. Offered fall and spring semesters. (353) or 353-354.

355-356 Indonesian Literatures 6 s.h.
Introduction to Indonesian literatures.  See 355. Offered fall and spring semesters. (355) or 355-356.

357-358 Indonesian Literatures 6 s.h.
Introduction to Indonesian literatures.  See 357. Offered fall and spring semesters. (357) or 357-358.

359-360 Indonesian Literatures 6 s.h.
Introduction to Indonesian literatures.  See 359. Offered fall and spring semesters. (359) or 359-360.
Individual Study for Advanced Students

90.181 Honors Tutorial
   Offered on satisfactory basis.

90.285 Senior Honors Thesis

90.336 Methods of Teaching Chinese
   3 s.h.
   Introduction to basic principles of elementary
   language instruction. Prerequisite: 90.236 or equiv.

91.219 Methods of Teaching Japanese
   Introduction to the basic principles and methodologies
   of Japanese language instruction. Prerequisite: 91.218 or equiv.

91.215 Individual Chinese for Advanced Students
   Individual selected research and translation projects
   for students whose native Chinese is beyond
   conversational level. Prerequisite: 91.215 or the equivalent.

91.215 Individual Japanese for Advanced Students
   Individual selected research and translation projects
   for students whose native Japanese is beyond
   conversational level. Prerequisite: 91.215 or the equivalent.

91.216 Individual German for Advanced Students
   Individual selected research projects for
   students whose native German is beyond
   conversational level. Prerequisite: 91.215 or the equivalent.

91.217 Individual Italian for Advanced Students
   Individual selected research projects for
   students whose native Italian is beyond
   conversational level. Prerequisite: 91.215 or the equivalent.

91.331 N. A. Thesis
   Offered upon request.

Astronomy

See "Physics and Astronomy."

Biochemistry

Acting head: Charles A. Swanson
Degree offered: B.A., B.S., M.S., Ph.D.

Biochemistry is the study of the basic chemical processes that occur in all living systems. It is currently one of the most active sciences, and provides a foundation for biology.

Biochemists generally work in laboratories and/or classrooms. Those with the Bachelor's degree are often employed as research assistants in industry, government, education, and health service, or in secondary school teaching, for which certification is required.

Biochemists with advanced degrees—

Bachelor of Arts in in Biochemistry

In addition to the College at Liberal Arts general education requirements, the Bachelor of Arts degree in biochemistry requires:

22.15 Mathematics for the Biological Sciences

22.16 Calculus for the Biological Sciences

22.11-12 College Physics

23.7 Principles of Animal Biology

2.1 Introduction to Botany

61.157 General Microbiology

61.147 Survey of Immunology

72.152 Mamalian Physiology

Other biological areas

4.13 Principles of Chemistry I

6.14 Principles of Chemistry II

4.16 Principles of Chemistry Lab I

4.121-122 Organic Chemistry I-II

4.130 Physical Chemistry I

4.132 Physical Chemistry II

99.135 Physical Biochemistry

99.141 Organic Chemistry Laboratory

99.1 Orientation and Introduction to the Field of Biochemistry

99.1 Technical Writing in Biochemistry

99.102 Undergraduate Seminar (1 s.h. of 99.01 and 2 s.h. of 99.102 required)

99.126 The Chemistry of Biological Materials

99.102 Seminar

99.150 Experimental Biochemistry

99.1 Biochemistry of Informational Macromolecules

99.155 Research: Independent Study

(may be taken for honors)

Advanced science electives at least 15 s.h.

Bachelor of Arts

In addition to the College at Liberal Arts general education requirements, the Bachelor of Arts degree in biochemistry requires:

22.15 Mathematics for the Biological Sciences

22.16 Calculus for the Biological Sciences

22.11-12 College Physics

23.7 Principles of Animal Biology

2.1 Introduction to Botany

61.157 General Microbiology

61.147 Survey of Immunology

72.152 Mamalian Physiology

Other biological areas

4.13 Principles of Chemistry I

6.14 Principles of Chemistry II

4.16 Principles of Chemistry Lab II

4.121-122 Organic Chemistry I-II

4.130 Physical Chemistry I

4.132 Physical Chemistry II

99.135 Physical Biochemistry

99.141 Organic Chemistry Laboratory

99.1 Orientation and Introduction to the Field of Biochemistry

99.1 Technical Writing in Biochemistry

99.102 Undergraduate Seminar (1 s.h. of 99.01 and 2 s.h. of 99.102 required)

99.126 The Chemistry of Biological Materials

99.102 Seminar

99.150 Experimental Biochemistry

99.1 Biochemistry of Informational Macromolecules

99.155 Research: Independent Study

(may be taken for honors)

Advanced science electives at least 15 s.h.

Biochemistry/LIBERAL ARTS
of vocations in which biochemistry has an important role. It is also possible for a B.A. student in biochemistry to complete the specified course requirements in three years and satisfy the requirements for the remaining advanced science electives during the first year of dental or medical school.

**Graduate Programs, Facilities, Faculty, Courses**

See "Biochemistry" in the College of Medicine section of the Catalog for descriptions of the department's graduate programs and facilities, and for its faculty roster and course offerings.

**Biology**

**Chair:** John R. Merzinger

**Professors:** Richard V. Bawling, George D. Cohn, Joseph Frankel, Cary N. Gaito, Joseph F. Heyne, Stephen P. Hoblet, Richard G. Kessel, Jerry J. Koltes, John R. Merzinger, Roger J. Wideman, James Davison Molet, Daniel R. Ruben, Michael Sazinak, Edward Spears, Barbara A. Stay, Geri M. Swietek

**Associate Professors:** Harold Basinger, Luther O. Noel, Osmond W. Sty

**Associate professors:** Jeffrey L. Denmark, Howard H. Jones, Leslie C. Jordan, Robert E. Maksen, Chie Fung Wu

**Assistant professors:** Greg A. Feeley, Jin-Jeng Chen, Lee E. Via

**Adjunct associate professor:** Mervin Nelson

**Degrees offered:** B.A., B.S., M.S., Ph.D., jointly administered with the Department of Botany

**Undergraduate Programs**

The undergraduate degree programs in biology are designed to foster students' understanding and appreciation of living organisms and to prepare students for careers in the health professions, teaching, public health, or the biological sciences. Undergraduate programs are administered jointly by the departments of Biology and Botany.

Graduates may enter research or service careers at the technical level in educational, governmental, and industrial institutions or foundations. The programs also prepare students for certification or advanced degree programs leading to independent research in biological fields, teaching at all levels, or the health professions—medicine, dentistry, pharmacy, nursing, para-medical practice, medical technology, dental hygiene, and physical therapy.

The basic course sequences are organized around major biological systems, at molecular, cellular, organismic, and population levels. Later, students may choose areas of specialization, leading to B.A. degrees in biochemistry.

**Students interested primarily in field biology have simple requirements for this emphasis through the program in ecology and evolutionary biology and use of the Macclintock Nature Preserve. Vertebrate courses emphasizing field biology are offered during the summer at the Iowa Lakeside Laboratory at Lake Okoboji.**

**Bachelor of Science**

**Required courses in biology** (54 semester hours)

- 21 Introduction to Botany 4 s.h.
- 37 Principles of Animal Biology 5 s.h.
- 37 Principles of Botany 5 s.h.
- 3721 Fundamental Genetics 3 s.h.
- 3721 Fundamental Genetics Laboratory 2 s.h.
- 3721 Evolution 4 s.h.
- 3721 Cell Physiology 4 s.h.
- Electives in biology, botany, microbiology, or geology (paleontology) 12 s.h.

**These courses are cross-listed in the**

**botany department.**

The 14 elective semester hours in biology must be in courses numbered 100 or above, but the courses may be selected in the sciences, non-science students. Also, the elective credit may not include more than 3 semester hours in biology and botany honors courses, 2150 Special Topics, and 1719 Introduction to Research. The elective courses can include up to 4 semester hours of advanced coursework in the physical sciences (physics, chemistry, geology) in specific courses in the basic science departments of the College of Medicine, or in mathematics courses that have 101-semester credits as prerequisites. The general goals in choosing these courses are that they are numbered 100 or above and carry elementary course prerequisites; they are most widely applicable for science majors; and they are not required in the required courses in cognitive sciences listed below. Students should choose elective courses in consultation with their advisors.

**Required courses in other disciplines** (28-29 s.h.)

- 314 Principles of Chemistry I-II 6 s.h.
- 4161 Principles of Chemistry Laboratory 2 s.h.
- 412 Organic Chemistry I 3 s.h.
- 99210 The Chemistry of Biological Material 3 s.h.
- 2911-2 College Physics I-II 8 s.h.
- 1718 Introductory Thermodynamics I-II 8 s.h.
- 22225 Calculus I 4 s.h.
- 22224 Calculus II 4 s.h.
- 22225 Calculus III 4 s.h.
- 22225 Calculus I for the Biological Sciences 4 s.h.
- 17146 Engineering Calculus I 4 s.h.
- 17148 Expository Writing (or equivalent) 3 s.h.

**Bachelor of Arts**

The B.A. program provides more options among the required courses than does the B.S. program. Also, B.A. degrees in the College of Liberal Arts require four college semesters of a foreign language or the equivalent (four years) in high school.

**Required courses in biology** (25 semester hours)

- 1719 Introduction to Botany 4 s.h.
- 313 Principles of Animal Biology 5 s.h.
- 371 Fundamental Genetics 3 s.h.
- 371 Evolution 4 s.h.
- 371 Adaptation and Natural Selection 4 s.h.

- As investigative laboratory course: 371 Developmental Biology Laboratory 2 s.h.
- 3712 Comparative Physiology Laboratory 2 s.h.
- 3712 Fundamental Genetics Laboratory 2 s.h.
- 3712 Quantitative Field Ecology 5 s.h.
- 3712 Endocrinology Laboratory 2 s.h.
- 3712 Techniques in Neurobiology 4 s.h.
- 2172 Enzyme Purification and Characterization 4 s.h.

**Electives in biology, botany, microbiology or paleontology (11 s.h.)**

**These courses are cross-listed in the**

**botany department.**

**Hours in the investigative laboratory**

**course requirement in excess of two may be**

**applied toward elective credit.**

**Of the 11 semester hours of elective credit, up to 6 semester hours may be earned in**

**other natural sciences or mathematics. Up to 3 of these 6 semester hours in**

**nonscience courses may be in**

26104 Introduction to Philosophy of Science or 16133 Science in the Nineteenth and Twentieth Centuries. Other restrictions and limitations in courses to satisfy the elective credit requirement apply as for the B.S. degree.

**Required courses in other disciplines** (12-13 semester hours)

- 4151-4 Principles of Chemistry I-II 6 s.h.
- 4161 Principles of Chemistry Laboratory 2 s.h.
- 4121 Organic Chemistry I 3 s.h.
- 99110 Biochemistry 3 s.h.
Honors

The honors program in biology gives the superior student membership in a small, active group of undergraduates with common interests. Honors students associate with one of the department's research groups, gaining an introduction to the pleasures of practicing science—experiments, discussions of current research, work on specialized topics, and attendance at research lectures.

Students in the College of Liberal Arts Honors Program may earn an honors degree in biology by completing at least 6 semester hours of honors course work in the departments of Biology and/or Botany, including at least 2 semester hours in 37196 Honors Laboratory Research or 2196 Honors Laboratory Research at least 2 semester hours in 37197 Honors Readings in Biology or 2197 Honors Readings in Botany; and at least 1 semester hour in 37198 Honors Seminar in Biology or a graduate-level seminar. An honors student in biology must maintain at least a 3.2 grade-point average overall and at least a 3.5 average in the biological sciences. A final research paper, approved by the research supervisor, is required.

Introduction to Research

The department offers 37199 Introduction to Research to acquaint students majoring in biology 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 which are jointly administered by the Department of Botany, are designed to prepare students for different kinds of professional activities, including teaching at various levels; participation in research in private, educational, or governmental laboratories; and service involving planning or administrative functions. In the last two decades, some 50 Ph.D. graduates of this department have subsequently been engaged in college or university teaching, while most of the others are in research positions. A substantial number of students completing their training in this area have obtained technical or professional positions, some of which require independent responsibility in management, supervision, or administration. Others are teaching at the secondary-school level or in community colleges.

Prior to registration in August, all new graduate students in biology take a diagnostic examination covering topics in developmental biology, genetics, physiology with an emphasis on cell physiology, evolution, and ecology. On the basis of examination results, students may be excused from further work in one or all of these fields, or may be required to take specific courses to enhance their backgrounds in these areas. Students must make up any deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor's degree outside of the biological sciences may request modification of certain area requirements; the student's degree committee will decide whether portions of the requirements may be waived.

All members of the biology faculty engage in research. Afloat of departmental research include cell biology, development biology, genetics, molecular biology, neurobiology, ecology, behavior, physiology, and parasitology. Many projects involve work in other departments; graduate students sometimes are advised jointly by faculty in these departments.

On admission, each new graduate student is assigned a temporary adviser, chosen to complement the research interests of the student. The temporary adviser guides the student through initial requirements and acts as the student's advocate. For purposes of graduate student evaluation, research training is categorized by four designations: developmental biology, ecology and behavior, genetics, and physiology. A committee of faculty from the area represented by the temporary adviser evaluates the student initially. After a time, students choose a permanent sponsor (adviser) and a Ph.D. advisory dissertation committee. Afterwards, responsibility for evaluation is shared by the dissertation committee and the sponsor's area committee.

Master of Science in Biology

The M.S. degree with thesis requires 30 semester hours of graduate credit and a thesis (based on original research). Ordinarily, 6 to 8 semester hours are assigned to thesis research and writing. The remaining hours are selected in consultation with the advisory committee; the choice of courses is tailored to the student's background and career goals.

Students receive credit for courses they are required to take but not for courses required by the admissions committee to make up undergraduate deficiencies. After the thesis is accepted, candidates must pass an oral examination based on the thesis and related subjects.

The M.S. degree without thesis requires 34 semester hours of graduate credit, and a library research report for which no more than 4 semester hours of credit may be granted. Credit may be earned in graduate courses in biology or cognate sciences; these courses are determined in consultation with the student's thesis committee and are tailored to foster the student's background and career goals.

Credit received in courses at the 600 level or above— with the exception of courses in biology required to make up deficiencies revealed by the diagnostic examination
Doctor of Philosophy
Each Ph.D. student's formal course or proficiency requirements are determined by his or her dissertation committee. On the basis of the work previously accomplished, the candidate must complete the comprehensive examination in the major field of study. This examination consists of written and oral examinations, which must be devised and administered by the dissertation committee. The candidate must satisfy all the requirements of the major field of study before the comprehensive examination can be given. A student who fails to pass the comprehensive examination must retake it, usually after completing a specified number of course work hours. For the Ph.D. degree, a minimum of 72 semester hours of graduate credit is required. The comprehensive examination is written, oral, and/or both.

Financial Aid
Financial Aid
Financial Aid
The department offers research assistantships, teaching assistantships, and selected research fellowships to qualified graduate students.

Facilities
The department is housed in a cluster of contiguous buildings. It has appropriate facilities for the care of many kinds of animals and special facilities for research with viruses, DNA sequencing, fruit flies, plants, and marine organisms. It has numerous walk-in and recorded voice-mailboxes, offices, and computer time-sharing facilities.

Admission
Admission
Admission
Applications for graduate admission should have a grade-point average above 3.4 and a Graduate Record Examination (GRE) Aptitude Test (verbal plus quantitative) score above 1200. Applicants also should take the Graduate Record Examination advanced biology test and submit their scores. Although the department prefers applicants who have completed undergraduate programs much like its own, it considers applicants with backgrounds in biophysics, botany, biochemistry, and other related areas.

Elementary Topics of General Interest
Elementary Topics of General Interest
Elementary Topics of General Interest
These courses are not open to graduate students and cannot be taken for credit toward a biology major.

Courses
Courses
Courses

For Undergraduates and Graduate Students
For Undergraduates and Graduate Students
For Undergraduates and Graduate Students

Iowa Lakeside Laboratory

Iowa Lakeside Laboratory

Iowa Lakeside Laboratory

Iowa Lakeside Laboratory

Iowa Lakeside Laboratory

Iowa Lakeside Laboratory

Iowa Lakeside Laboratory

Iowa Lakeside Laboratory
Botany/LIBERAL ARTS 77

Mathematics Requirement
22M:15 Mathematics for the Biological Sciences 4 s.h.
or
22M:19 Elementary Functions 3 s.h.
A statistics course:
22S:102 Introduction to Statistical Methods (or an equivalent course) 3 s.h.

Bachelor of Arts
The B.A. curriculum provides a broad background in botany yet allows more electives than does the B.S.
In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take:

Botany and Biology Requirements:
2.1 Introduction to Botany 4 s.h.
2.7.1 Principles of Animal Biology 5 s.h.
2.128 Fundamental Genetics 3 s.h.
2.133 Plant Anatomy 4 s.h.
One course from each of the following four areas (17-20 semester hours):
Physiology and Cell Biology
2.149 Plant Physiology 4 s.h.
2.110 Plant Physiology 4 s.h.
2.114 Cellular Plant Physiology 3 s.h.
2.125 Plant Biochemistry 3 s.h.
37.135 Cell Physiology 4 s.h.
Vascular Plant Diversity
2.203 Biodiversity 4 s.h.
2.222 Biological Botany 3 s.h.
2.191 Plant Taxonomy 4 s.h.
2.251 Summer Flora 3 s.h.
2.120 Paleobotany 4 s.h.
2.105 Plant Taxonomy 5 s.h.
Ecology and Evolution
2.111 Plant Ecology 4 s.h.
37.110 General Ecology 3 s.h.
2.191 Evolution 4 s.h.
2.156 Field Ecology 4 s.h.
Biology of Non-Vascular Plants
2.102 Algae and Fungi 4 s.h.
2.105 Physiology 4 s.h.
2.106 Bryology-Lichenology 3 s.h.
2.107 Mycology 4 s.h.
The student also must take one 100-level course in botany or cognate sciences.

Chemistry Requirement
4.13 Principles of Chemistry I 3 s.h.
4.14 Principles of Chemistry II 3 s.h.
4.14 Principles of Chemistry Lab 2 s.h.
4.231 Organic Chemistry I 3 s.h.
4.12 Organic Chemistry II 3 s.h.
or
95.110 Biochemistry 3 s.h.
or
95.120 The Chemistry of Biological Materials 3 s.h.

Mathematics Requirement
One of the following courses; students should consult advisor:
22M:15 Mathematics for the

Biological Sciences
22M:16 Calculus for the Biological Sciences 4 s.h.
22M:19 Elementary Functions 3 s.h.
22M:25 Calculus I 4 s.h.

Students preparing to teach in secondary schools should consult the "College of Education" section in the Catalog regarding requirements for teacher certification.

Honors
An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by faculty members.
In addition to the regular requirements for the B.A. and B.S. degrees, honors students must:
Maintain an overall grade-point average of 3.2;
Maintain a minimum grade-point average of 3.2 in all botany and biology courses;
Complete 4-6 semester hours of honors course work with a minimum of 4 semester hours of Honors Research (2.196);
Present a written research report (honors thesis), which has been approved by the student's research supervisor, to the botany honors advisor; and
Defend his or her honors thesis before a committee composed of the botany honors research advisor, the student's research supervisor, and a third faculty member chosen by the student and the honors advisor.

Minor
The botany minor requires 15 semester hours of credit in botany. At least 12 of these semester hours must be taken at The University of Iowa in courses numbered 2.100 and above.

Graduate Programs
An advanced degree enhances career opportunities in botany. The department offers advanced degree work in anatomy, botany, cell biology, ecology, genetics, development and morphogenesis, mycology, palaeobotany, physiology, physiology, plant biochemistry, and taxonomy. Graduate training frequently involves interdisciplinary study requiring more course work in cognitive departments. Each graduate student is assigned a faculty guidance committee to help him or her set educational goals and plan the course requirements necessary to meet them.

Master of Science in Botany
The botany department offers two distinct M.A. degrees—one in plant taxonomy and one without. The M.S. with thesis places greater emphasis on independent research and less on formal course work. It is intended primarily for candidates who have a strong course background in botany or biology.

Master's Degree without Thesis
Each student must:
Submit a program of study approved by a guidance committee comprising three members of the graduate faculty, one of whom may be from another department; the program of study should be prepared during the first semester in residence as a regular graduate student;
Complete at least 34 semester hours of graduate courses in botany or supporting areas, as prescribed by the guidance committee; six hours of research (2.255) are required; additional research hours may be taken, but no more than six may be counted toward the 34 hour degree requirement;
Achieve a grade-point average of 3.0 on all courses—other than research—completed prior to the final examination;
Pass a written examination during the term in which he or she is to graduate (individual committee members may opt not to require a written examination area), followed within a week by an oral examination; these examinations cover the courses and research experience the student has had.

Master's Degree with Thesis
Each student must:
Submit a program of study (= for the M.S. without thesis, above);
Complete at least 36 semester hours of graduate courses in botany or supporting areas, as prescribed by the guidance committee; nine hours of research and thesis (2.255 and 2.259) are required; additional research hours may be taken, but no more than six may be counted toward the 36-hour degree requirement;
Achieve a grade-point average of 3.0 on all courses—other than research—attempted up to the time of the final examination;
Prepare a thesis on research conducted;
Defend the thesis in an examination during the term in which he or she is to graduate.
Doctor of Philosophy in Botany

The Ph.D. is primarily a research degree. It may be earned after the student has conducted original research of sufficient magnitude and value to allow a thesis to be written and successfully defended before the final examination committee. In addition, the student must complete 72 semester hours of graduate coursework and research as prescribed by his or her guidance committee. Hours earned for the master's degree may be counted toward the 72 semester hour minimum. The guidance committee may also require that course work beyond the 72 semester hours be taken to meet specific proficiency requirements (e.g., language or statistics) or to make up for background deficiencies (e.g., chemistry or general botany course work).

Specific degree requirements are as follows; the student must:

Submit a program of study for the Ph.D. to a guidance committee during the first semester in residence as a Ph.D. candidate; the program must be approved by the guidance committee;

Fulfill all course work requirements of the program above; changes may be made only with the formal (written) approval of the guidance committee;

Complete an initial research proposal within two or three semesters after admission to the Ph.D. program (i.e., post-M.S.), the proposal, which should outline the specific objectives, significance, and methodology of the chosen research project, should gain written acceptance from members of the guidance committee; subsequently, copies of the approved proposal will be distributed to the candidate to all faculty members of the botany department;

Give an oral presentation of the proposed research work to members of the botany department within a six-month period following acceptance of the initial research proposal; the candidate thereby will be eligible for 1 semester hour credit under 3221;

Seminar Botany (see section on botany seminars);

Pass a written and oral comprehensive examination when formal course work has been completed or nearly completed;

Submit a doctoral thesis based on original research to the final examination committee for review;

Present the results of the thesis research at a meeting of the botany seminar, preferably before the thesis defense;

Pass the final doctoral examination, which is primarily a defense of the thesis, methods, and significance of the doctoral thesis.

Graduate Admission

University requirements

An application form for admission to the Graduate College must be completed and sent to the Dean of Admissions, the University of Iowa, Iowa City, Iowa 52242. Official transcripts from each undergraduate and graduate institution attended and scores on the Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative parts) should be submitted with the application. A valid I.S. or I.A. degree from an accredited institution is required.

Departmental requirements

Masters Degree Program:

A cumulative grade-point average of at least 3.0 on all college level work attempted;

A GRE Aptitude Test score (verbal plus quantitative) of 1100 or greater; and

Three letters of recommendation.

Provision: The numerical requirements are not absolute. For example, a student may compensate for a GRE Aptitude Test score slightly below 1100 with a high level of academic achievement.

The Ph.D. Program:

A grade-point average of at least 3.4 on graduate work;

A GRE Aptitude Test score of at least 1200;

Three letters of recommendation; and

A master's degree in botany or a biological science.

Provision: The numerical requirements are not absolute. For example, a student may compensate for a GRE Aptitude Test score slightly below 1200 with a high level of academic achievement, especially during the M.S. program.

Students applying for admission to the master's program in botany must have a bachelor's degree in one of the biological sciences. Students with bachelor's degrees in other areas will need to register as special students (199) and make up the equivalent of the department's bachelor's degree program prior to a consideration for admission. In addition to the botany and biology courses listed in the undergraduate program, special students will need to complete the chemistry and mathematics requirements to show equivalency.

Students should consult the department chair before attempting to set up a program as special students.

Special provision for foreign students:

Admission for foreign students is based on a quantitative score on the GRE Aptitude Test of 650 or greater and a Test of English as a Foreign Language (TOEFL) score of 550 or greater. These scores may be used in place of the total GRE requirement as outlined above.

Financial Aid

New students wishing to apply for assistantships or fellowships may submit an application for graduate awards forms when applying for admission to graduate study. The application forms may be obtained from the Office of Admissions, the Graduate College, or the departmental office. Applications for teaching assistantships are reviewed by the faculty, those for research assistantships and fellowships are reviewed by the Graduate College, upon recommendation by the department faculty. The kinds and amounts of support for graduate study in botany are, as in other departments, variable from year to year depending on the availability of funds. The types of appointments and support are: teaching assistantships and research assistantships (see fall-quarter and one-quarter time), teaching research fellowships (TRF), genetics research assistantships, other sources of support, and the student's own resources. Teaching and research assistantships: Appointments to an assistantship require that the student provide approximately 20 hours of work per week; appointments pay resident tuition rates.

Teaching research fellowships (TRF): Teaching research fellowships are the most liberal awards available. The award is made for four years for beginning graduate students and three years for students who have an M.S. degree. They carry a stipend for 12 months plus waiver of tuition. Appointees serve the department either as one-half-time teaching for nine research assistantship for two or three years. The final year of appointment is free of service requirements, permitting a student to devote full time to research or thesis writing. The Graduate College requires that teaching research fellowships be awarded to students from other countries or students from the University of Iowa who have not taken graduate work.

Genetics research assistantships are provided by the interdepartmental genetics program from University funds. Assistantships whose thesis project is primarily concerned with genetics are eligible to apply.
Summer appointments depend on available summer sessions budget. The department has awarded as many as four teaching and four research assistantships in recent summer sessions. Summer session stipends are two-thirds of the academic year salary. Awards are made for one-half-time service or 20 hours of time per week for the eight-week summer session. Selection of teaching assistants for the summer is made by the instructor in charge of the course to be served.

Faculty members with individual grants-in-aid may wish to employ one-half-time or one-quarter-time research assistants. These awards are made by the principal investigator in charge of the grant and carry stipends similar to those available from departmental resources. Graduate College and departmental regulations and standards apply to these appointments.

Grants-in-aid for graduate students must be made by the department head. Agencies such as NIH, NSF, and Sigma Xi make grants-in-aid to graduate students. Announcements of availability are made from time to time. Students should consult the department chair for details. The Graduate College also provides information regarding grants available to graduate students.

Special Faculties and Activities

There is an excellent departmental library in the Biological Sciences Building. Students conducting research projects requiring the cultivation of plants have access to greenhouses and well-equipped growing rooms with controlled environments. A plant physiology laboratory with associated greenhouses is available.

A number of research laboratories are equipped with standard and more sophisticated apparatus for research in vegetables, crops, toxicology, phytochemistry, plant breeding, biochemistry, biophysical systems, plant physiology, cytogenetics, and ecological studies. The physiological plant laboratory contains a complete complement of facilities for research in field, growth chamber, and greenhouse environments.

The Biological Sciences Library contains a large number of books, journals, and periodicals on all aspects of plant sciences. A large number of students and staff use the scanning electron microscope laboratory in the Bowen Science Building.

The Center for Research and Education in Conservation and Ecological Studies, located in the Biological Sciences Building, contains extensive collections of seed plants and films from Iowa and the Midwest, and there are special research facilities from Mexico and Central America. The Center houses a herbarium of bryophytes, and a growing repository of fossil paleoecologic plants.

A forest reserve is available within a few miles of the field for trips and experimental projects. A biological field station at Iowa Lakeside Laboratory on West Lake (Mollusk) in northwest Iowa offers opportunities for conducting ecological research, study in fields of biology, botany, ichthyology, physiological ecology, aquatic ecology, and plant taxonomy (see "Iowa Lakeside Laboratory" in this section of the Catalog). Students frequently participate in field expeditions in Mexico and Central America. Qualified graduate students may use the West Computing Center in their research projects.

Courses

Primary for Undergraduates

Botany

201 Introduction to Botany
202 Iowa Flora
203 Biology of the Local Flora
204 Plant Propagation
205 Spring Flora
206 Plants and Human Affairs
207 Plant Diversity
208 Plant Taxonomy
209 Algae and Fungi
210 Introductory Genetics
211 Plant Anatomy
212 Plant Physiology
213 Boryology-Phycology

Secondary for Undergraduates

210 Phylogeny
211 Morphology and Botany of High Tissue of Reproductive Systems of Reproduction
212 Plant Physiology
213 Plant Anatomy

214 General Botany
215 Plant Nutrition

216 Plant Ecology
217 Experimental studies in taxonomy, morphology, growth, physiology, and genetics of seed plants.

218 Experimental and Ecological: Experimental Studies in Taxonomy, Morphology, Growth, Physiology, and Genetics of Seed Plants.
Graduate Programs

Master of Science

The department offers the M.S. degree, with or without thesis, in analytical, inorganic, organic, and physical chemistry and in chemical physics. Candidates for the M.S. degree must demonstrate competence at the undergraduate level in analytical, inorganic, organic, and physical chemistry by passing specific examinations (given twice a year) or by enrolling in an equivalent undergraduate course. This requirement must be completed by the end of the first year of enrollment. Formal graduate course work includes at least two courses in an area of specialization and four additional graduate courses. A minimum grade-point average of 2.5 is required for admission to the master's examination.

Ph.D. Programs

A program of study for the Ph.D. degree in the areas listed by the M.S. degree includes the undergraduate competency examinations. Courses required for the M.S. degree, additional courses that may be required in the master's thesis, and research.

Students who have not met the course requirements with a cumulative grade-point average of 3.0 are admitted to the oral comprehensive examination upon presentation and preliminary approval of their written research proposal. The oral comprehensive examination must be taken no later than the end of the second year of enrollment.

Upon completion of the Ph.D. research the student will submit a thesis. The final examination consists of an oral defense of the thesis, at this time a manuscript of the publishable portion of the thesis is presented.

Interdisciplinary Programs

The Department of Chemistry cooperates in interdisciplinary programs in applied mathematics and in chemical physics. "Graduate degree" work in the latter two (in the College) students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.

Admission

An applicant for graduate admission should have a bachelor's degree in chemistry with a grade-point average above 3.0. Most of the graduate students who are admitted receive financial support, and application forms may be obtained by writing to the Department of Chemistry.

Facilities

The department is housed in a four-story building containing two auditors, 9 lecture rooms, 15 undergraduate laboratories, 43 graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. Modern scientific equipment is available for research.

The department's excellent library facilities are available to all students. The library contains standard reference works and current volumes of chemical and chemical engineering journals, and subscribes to a large number of current scientific journals.

Courses

Primarily for Undergraduates

Students planning to take more than one year of chemistry should take 413, 414, and 416. Students planning to take the chemistry only portion of the course should take 415 and 416. Students planning only to take the chemistry only portion of the course should take 415 and 416.

400 Cooperative Education Internship

410 Analytical Chemistry I

410 Analytical Chemistry II

430 Physical Chemistry I

430 Physical Chemistry II

440 Organic Chemistry Laboratory

440 Organic Chemistry Laboratory

445 Physical Measurements

445 Physical Measurements

448 Inorganic Chemistry Laboratory

448 Inorganic Chemistry Laboratory

449 Industrial Chemistry Laboratory

449 Industrial Chemistry Laboratory

451 Industrial Chemistry Laboratory

451 Industrial Chemistry Laboratory

454 Quantum Mechanics

454 Quantum Mechanics

455 Chemical Thermodynamics

455 Chemical Thermodynamics

456 Mathematical Methods

456 Mathematical Methods

457 Inorganic Chemistry

457 Inorganic Chemistry

458 Physical Chemistry I

458 Physical Chemistry I

459 Physical Chemistry II

459 Physical Chemistry II

460 Chemical Thermodynamics

460 Chemical Thermodynamics

461 Organic Chemistry Laboratory

461 Organic Chemistry Laboratory

464 Quantum Mechanics

464 Quantum Mechanics

465 Physical Chemistry

465 Physical Chemistry

466 Inorganic Chemistry Laboratory

466 Inorganic Chemistry Laboratory

467 Basic Physics

467 Basic Physics

468 Physical Chemistry

468 Physical Chemistry

469 Inorganic Chemistry Laboratory

469 Inorganic Chemistry Laboratory

470 Advanced Inorganic Chemistry

470 Advanced Inorganic Chemistry
Greek
14:11-12 Second-Year Greek 6 s.h.
All courses numbered 14:11-12 or higher Courses numbered 14:100-120 do not count toward the minor, because they are not courses in Greek language.

Latin
20:16-17 Intermediate Latin I-II 6 s.h.
20:31 Age of Cicero 3 s.h.
20:42 Age of Augustus 3 s.h.
All courses numbered 20:16-12 or higher Courses numbered 20:101-120 do not count toward the minor because they are not courses in Latin language.

Classics
14:4-12 Second-Year Greek 6 s.h.
20:16-17 Intermediate Latin I-II 6 s.h.
20:31 Age of Cicero 3 s.h.
20:42 Age of Augustus 3 s.h.
These courses or their equivalents are required for the minor in classics, on that students will have had both Greek and Latin.

Ancient Civilization
All courses numbered 14:100, 20:100, or higher, appropriate courses from the schools of Art and Art History and Religion and the departments of History and Philosophy, as selected by the interdepartmental committee on the major in ancient civilization.

24:02 Introduction to Ancient Art 3 s.h.
20:31 Age of Cicero 3 s.h.
20:42 Age of Augustus 3 s.h.

Honors
For exceptional seniors who earn a 3.5 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 2 semester hours of credit each semester. The readings are done under the direction of the student, and the student author or a field is ancient history or literature chosen by the student and the instructor. During the first two weeks of each semester the students present an essay every other week, at the end of the second semester students present a long paper, which is examined by at least three members of the department.

Minors
Requirements for a minor in classics are a minimum of 15 semester hours, at least 12 of which are in advanced courses taken at The University of Iowa. Students may earn a minor in the departments in four areas: Greek, Latin, classics, and ancient civilization. The following courses are considered toward the minor:

Greek
14:11-12 Second-Year Greek 6 s.h.
All courses numbered 14:11-12 or higher Courses numbered 14:100-120 do not count toward the minor, because they are not courses in Greek language.

Latin
20:16-17 Intermediate Latin I-II 6 s.h.
20:51 Age of Cicero 3 s.h.
20:42 Age of Augustus 3 s.h.
All courses numbered 20:16-12 or higher Courses numbered 20:101-120 do not count toward the minor because they are not courses in Latin language.

Classics
14:4-12 Second-Year Greek 6 s.h.
20:16-17 Intermediate Latin I-II 6 s.h.
20:31 Age of Cicero 3 s.h.
20:42 Age of Augustus 3 s.h.
These courses or their equivalents are required for the minor in classics, on that students will have had both Greek and Latin.

Ancient Civilization
All courses numbered 14:100, 20:100, or higher, appropriate courses from the schools of Art and Art History and Religion and the departments of History and Philosophy, as selected by the interdepartmental committee on the major in ancient civilization.

24:02 Introduction to Ancient Art 3 s.h.
20:31 Age of Cicero 3 s.h.
20:42 Age of Augustus 3 s.h.

Language for Nonmajors
Students who want to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 14:4-12 Elementary Greek and 14:11-12 Second-Year Greek. Students who want to major in philosophy by studying Greek should take 20:16-17 Intermediate Latin or 20:15 Accelerated Latin, and 20:16-17 Intermediate Latin I-II.

Graduate Programs
For the general requirements of the Graduate College, including the comprehensive examinations, see the "Graduate College" section of the Catalog. Graduate students in classics may not include in their programs more than 6 semester hours of courses numbered 101-199.

Master of Arts
The department offers the M.A. degree in Latin, Greek, or classics. Candidates must earn at least 30 semester hours of major credit in courses numbered 101 and above. Usually, students in the Latin program who have not had Greek are expected to include at least elementary Greek in their programs.

Doctor of Philosophy
Required Courses
A one-semester course in Greek readings (3 s.h.)
A one-semester course in Latin readings (3 s.h.)
Advanced Greek or equivalent Advanced Latin composition (3 s.h.) or equivalent

Any two of the following three courses: A 3 s.h. course in Indo-European philology A 3 s.h. course in Greek philology Any 3 s.h. graduate-level art course A total of 48 semester hours of specified courses is required. The minimum graduate college requirement is 72 semester hours; the difference of 30 semester hours is to be made up from regular departmental offerings.

Required Ph.D. Examinations

Precomprehensive French competence German competence Latin signs (3 s.h.)

Greek sight (1 s.h.)

One sight examination must be attempted by the end of the first year of graduate study.

Ph.D. Comprehensive (request for the comprehensive examination must be filed at least three weeks before the date of the examination.)*
Candidates have the option of taking examinations in any sequence. (Greek, literature (including passages)—4 hours, written) (Latin, literature (including passages)—4 hours, written) Ancient History—4 hours, written Special field or author—3 hours, written Oral or written examination—1 hour

Dissertation

Facilities
External 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 objects on classical subjects, and a small library.

Associated with the department, the classical museum contains a valuable collection of coins, vases, and frescoes in plaster from Mycenae, Rome, and Herculeum.

The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vorgian Society, thereby making those facilities available to its faculty and graduates.

Courses
Greek—for Undergraduates
16.01 Elementary Greek
Prerequisites: None. Credit cannot be counted toward the major.

16.02 Elementary Greek
Prerequisites: None. Credit cannot be counted toward the major.

16.03 New Testament Greek
Prerequisites: Knowledge of New Testament Greek is required. Credit cannot be counted toward the major.

16.04 Modern Greek Language and Culture I
Prerequisites: None. Credit cannot be counted toward the major.

16.05 Modern Greek Language and Culture II
Prerequisites: None. Credit cannot be counted toward the major.

16.06 Modern Greek Language and Culture III
Prerequisites: None. Credit cannot be counted toward the major.

16.07 Modern Greek Language and Culture IV
Prerequisites: None. Credit cannot be counted toward the major.

16.10 Second-Year Greek
Prerequisites: None. Credit cannot be counted toward the major.

16.11 Intermediate Greek
Prerequisites: None. Credit cannot be counted toward the major.

Greek—for Undergraduates and Graduates
16.121 Homer and Hesiod I
Prerequisites: None.

16.122 Homer and Hesiod II
Prerequisites: None.

16.123 Homer and Hesiod III
Prerequisites: None.

16.164 Greek and Pindar
Prerequisites: None.

16.165 Greek and Pindar
Prerequisites: None.

16.166 Greek and Pindar
Prerequisites: None.

16.167 Greek and Pindar
Prerequisites: None.

16.168 Greek and Pindar
Prerequisites: None.

16.169 Greek and Pindar
Prerequisites: None.

16.170 Greek and Pindar
Prerequisites: None.

16.171 Greek and Pindar
Prerequisites: None.

16.172 Greek and Pindar
Prerequisites: None.

16.173 Greek and Pindar
Prerequisites: None.

16.174 Greek and Pindar
Prerequisites: None.

16.175 Greek and Pindar
Prerequisites: None.

16.176 Greek and Pindar
Prerequisites: None.

16.177 Greek and Pindar
Prerequisites: None.

16.178 Greek and Pindar
Prerequisites: None.

16.179 Greek and Pindar
Prerequisites: None.

16.180 Greek and Pindar
Prerequisites: None.

16.181 Greek and Pindar
Prerequisites: None.

16.182 Greek and Pindar
Prerequisites: None.

16.183 Greek and Pindar
Prerequisites: None.

16.184 Greek and Pindar
Prerequisites: None.

16.185 Greek and Pindar
Prerequisites: None.

16.186 Greek and Pindar
Prerequisites: None.

16.187 Greek and Pindar
Prerequisites: None.

16.188 Greek and Pindar
Prerequisites: None.

16.189 Greek and Pindar
Prerequisites: None.

16.190 Greek and Pindar
Prerequisites: None.

16.191 Greek and Pindar
Prerequisites: None.

16.192 Greek and Pindar
Prerequisites: None.

16.193 Greek and Pindar
Prerequisites: None.

16.194 Greek and Pindar
Prerequisites: None.

16.195 Greek and Pindar
Prerequisites: None.

16.196 Greek and Pindar
Prerequisites: None.

16.197 Greek and Pindar
Prerequisites: None.

16.198 Greek and Pindar
Prerequisites: None.

16.199 Greek and Pindar
Prerequisites: None.

17.01 Latin Literature I
Prerequisites: None.

17.02 Latin Literature II
Prerequisites: None.

17.03 Latin Literature III
Prerequisites: None.

17.04 Latin Literature IV
Prerequisites: None.

17.05 Latin Literature V
Prerequisites: None.

17.06 Latin Literature VI
Prerequisites: None.

17.07 Latin Literature VII
Prerequisites: None.

17.08 Latin Literature VIII
Prerequisites: None.

17.09 Latin Literature IX
Prerequisites: None.

17.10 Latin Literature X
Prerequisites: None.

17.11 Latin Literature XI
Prerequisites: None.

17.12 Latin Literature XII
Prerequisites: None.

17.13 Latin Literature XIII
Prerequisites: None.

17.14 Latin Literature XIV
Prerequisites: None.

17.15 Latin Literature XV
Prerequisites: None.

17.16 Latin Literature XVI
Prerequisites: None.

17.17 Latin Literature XVII
Prerequisites: None.

17.18 Latin Literature XVIII
Prerequisites: None.

17.19 Latin Literature XIX
Prerequisites: None.

17.20 Latin Literature XX
Prerequisites: None.

17.21 Latin Literature XXI
Prerequisites: None.

17.22 Latin Literature XXII
Prerequisites: None.

17.23 Latin Literature XXIII
Prerequisites: None.

17.24 Latin Literature XXIV
Prerequisites: None.

17.25 Latin Literature XXV
Prerequisites: None.

17.26 Latin Literature XXVI
Prerequisites: None.

17.27 Latin Literature XXVII
Prerequisites: None.

17.28 Latin Literature XXVIII
Prerequisites: None.

17.29 Latin Literature XXIX
Prerequisites: None.

17.30 Latin Literature XXX
Prerequisites: None.

17.31 Latin Literature XXXI
Prerequisites: None.

17.32 Latin Literature XXXII
Prerequisites: None.

17.33 Latin Literature XXXIII
Prerequisites: None.

17.34 Latin Literature XXXIV
Prerequisites: None.

17.35 Latin Literature XXXV
Prerequisites: None.

17.36 Latin Literature XXXVI
Prerequisites: None.

17.37 Latin Literature XXXVII
Prerequisites: None.

17.38 Latin Literature XXXVIII
Prerequisites: None.

17.39 Latin Literature XXXIX
Prerequisites: None.

17.40 Latin Literature XL
Prerequisites: None.

17.41 Latin Literature XL I
Prerequisites: None.

17.42 Latin Literature XL II
Prerequisites: None.

17.43 Latin Literature XL III
Prerequisites: None.

17.44 Latin Literature XL IV
Prerequisites: None.

17.45 Latin Literature XL V
Prerequisites: None.

17.46 Latin Literature XL VI
Prerequisites: None.

17.47 Latin Literature XL VII
Prerequisites: None.

17.48 Latin Literature XL VIII
Prerequisites: None.

17.49 Latin Literature XL IX
Prerequisites: None.

17.50 Latin Literature XLI
Prerequisites: None.

17.51 Latin Literature XLII
Prerequisites: None.

17.52 Latin Literature XLIII
Prerequisites: None.

17.53 Latin Literature XLIV
Prerequisites: None.

17.54 Latin Literature XLV
Prerequisites: None.

17.55 Latin Literature XLVI
Prerequisites: None.

17.56 Latin Literature XLVII
Prerequisites: None.

17.57 Latin Literature XLVIII
Prerequisites: None.

17.58 Latin Literature XLIX
Prerequisites: None.

17.59 Latin Literature L
Prerequisites: None.

17.60 Latin Literature LI
Prerequisites: None.

17.61 Latin Literature LII
Prerequisites: None.

17.62 Latin Literature LIII
Prerequisites: None.

17.63 Latin Literature LIV
Prerequisites: None.

17.64 Latin Literature LV
Prerequisites: None.

17.65 Latin Literature LX
Prerequisites: None.

17.66 Latin Literature LXI
Prerequisites: None.

17.67 Latin Literature LXII
Prerequisites: None.

17.68 Latin Literature LXIII
Prerequisites: None.

17.69 Latin Literature LXIV
Prerequisites: None.

17.70 Latin Literature LXV
Prerequisites: None.

17.71 Latin Literature LXVI
Prerequisites: None.

17.72 Latin Literature LXVII
Prerequisites: None.

17.73 Latin Literature LXVIII
Prerequisites: None.

17.74 Latin Literature LXIX
Prerequisites: None.

17.75 Latin Literature LXX
Prerequisites: None.

17.76 Latin Literature LXXI
Prerequisites: None.

17.77 Latin Literature LXXII
Prerequisites: None.

17.78 Latin Literature LXXIII
Prerequisites: None.

17.79 Latin Literature LXXIV
Prerequisites: None.

17.80 Latin Literature LXXV
Prerequisites: None.

17.81 Latin Literature LXXVI
Prerequisites: None.

17.82 Latin Literature LXXVII
Prerequisites: None.

17.83 Latin Literature LXXVIII
Prerequisites: None.

17.84 Latin Literature LXXIX
Prerequisites: None.

17.85 Latin Literature LXXX
Prerequisites: None.

17.86 Latin Literature LXXXI
Prerequisites: None.

17.87 Latin Literature LXXXII
Prerequisites: None.

17.88 Latin Literature LXXXIII
Prerequisites: None.

17.89 Latin Literature LXXXIV
Prerequisites: None.

17.90 Latin Literature LXXXV
Prerequisites: None.

17.91 Latin Literature LXXXVI
Prerequisites: None.

17.92 Latin Literature LXXXVII
Prerequisites: None.

17.93 Latin Literature LXXXVIII
Prerequisites: None.

17.94 Latin Literature LXXXIX
Prerequisites: None.

17.95 Latin Literature XC
Prerequisites: None.

17.96 Latin Literature XCI
Prerequisites: None.
registering for thesis credit, candidates first must choose a faculty member to supervise the project, then have a prospectus for the project approved by that faculty member and the departmental honors advisor. The completed thesis is defended before a committee consisting of the faculty advisor, the departmental honors advisor, and other persons.

Students who enroll in the honors program also are eligible to take any communication studies course with an honors designation by completing an agreement with the course instructor for special work in that course. Forms providing exact instructions may be obtained from the honors advisor.

Graduate Programs

Master of Arts

A student can earn a terminal M.A. degree in the department or a more specialized degree either in one of the divisions or in some combination of divisions.

Departmental requirements for the Master of Arts degree are:

A minimum of 36 semester hours, including 30-300 Introduction to Research or its equivalent, and at least two courses numbered 200 or above;

A research thesis or, for the nonthesis degree, a graduate seminar paper involving significant original research;

Successful completion of a six-hour written examination, the scope of which is determined by the candidate's division and graduate committee; and

At least a 3.0 cumulative grade-point average for all courses in the plan of study.

The application deadline for the fall semester or summer session is the February 1 preceding, for maximum probability of admission. The minimum cumulative undergraduate grade-point average required for admission in good standing is 2.75.

Education Specialist (for Junior College Teaching)

Departmental requirements for the Education Specialist degree are:

A minimum of 60 semester hours, including 30-300 Introduction to Research; a course in teaching methodology; an approved seminar; and at least 19 semester hours completed in the College of Education graduate program in higher education;

Successful completion of a research report;

A semester internship in an assigned teaching position;

Satisfactory performance on a nine-hour written examination covering areas of learning agreed on by the student and his or her graduate committee; and

Successful completion of such additional requirements as are specified by the departmental division in which the student's work is concentrated.

Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy degree are:

A minimum of 84 semester hours of graduate credit, exclusive of dissertation, and including a 12-hour sequence in an approved research skill;

A minimum of 10 semester hours of dissertation credit;

36-300 Introduction to Research or its equivalent;

At least two courses in theory taken within the department, and others as determined by the student's advisor and graduate committee, in cooperation with the student;

Successful completion of a qualifying and a dissertation examination in the student's major research area;

A substantial scholarly dissertation;

A 3.0 minimum cumulative grade-point average for all courses in the plan of study.

The application deadline for the fall semester or summer session is the February 1 preceding, for maximum probability of admission. Admission decisions are based on composite consideration of the applicant's undergraduate achievement, letters of reference; and other evidence of scholarly potential or achievements, such as Graduate Record Examination (GRE) Aptitude Test results and samples of scholarly work.

Facilities

The Communication Studies Building, one of the newest facilities on campus, has been designed specifically to meet both research and technical needs. Included are two television studios, a complete video postproduction facility, a film sound stage, a two-hour app, areas for animation and graphics production, a audio studio, and an advanced 24-track audio studio that serves the needs of courses throughout the program. A large pool of equipment is available to support student work in both studio and location settings. Students and scholars have access to a video and film library, individual viewing areas, a lab complex for experimental and survey research, and a computer for research efforts. The Communication Studies Building is one of the best facilities of its kind in higher education.

Interdivisional Courses

36-300 Cooperative Education Internship 1 s.h.
36-310 Communication Studies 1 s.h.
36-320 Methods of Analysis, Theory, and Research in Communication Science, Methodology, laboratory, laboratory personnel, and original research. Open only to high school students with high school seniors' review credit.
36-324 Honor's College 1 s.h.
36-395 Honors in Communication Studies 1 s.h.
36-410 Problems in Communication Studies 1 s.h.
36-459 Undergraduate Internship 1 s.h.
36-479 Workshop in Teaching Communications and Forensics 1 s.h.
36-480 Methods of Research and Measurement 1 s.h.
36-490 Seminar in Research Methods and Methodology 1 s.h.
36-500 Independent Study 1 s.h.
36-510 Introduction to Research 1 s.h.
36-530 Directed Study and Research 1 s.h.
36-540 Research Design 1 s.h.
36-560 Ph.D. Dissertation 1 s.h.

Communication Education

Professor In charge: Dennis M. Trenk

Degrees offered: B.A., M.A.

The communication teaching major requires a minimum of 33 semester hours of Communication Studies. Students should include the following in their program: 49300 Oral Interpretation of Literature, and two courses selected from each of the four departmental undergraduate divisions, with approval of a communication education advisor.

In addition to the secondary education Teacher Education Program Foundations courses, students seeking teacher certification in communication and theatre arts must also register for:

75-100 Methods: Communication 3 s.h.
36-110 Methods: Communication 3 s.h.
36-101-102 Observation and Laboratory Practice in the Secondary School 5 s.h.
75-187 Seminar: Curriculum and Student Teaching 1 s.h.

To strengthen both their major and their employment opportunities, students are advised to complete a minor certification in
Minor Certification in Communication Studies

Completion of 23 semester hours of courses in communication and theatre arts is required. These hours must be approved by an adviser.

Courses

COMM 107 Directing Format Auditions 3 s.h.
Planning, organizing, and producing format programs at the secondary level; course designed to introduce students to the production of plays for public performance.

COMM 116 Mass-Info Communication 3 s.h.
Teaching communication, principles and techniques of mass-communication, introduction to the role of mass media in contemporary society. Includes an analysis of the organizational, economic, and social functions of the mass media.

COMM 220 Classical Communication 3 s.h.
An examination of the theories and problems involved in the study of ancient communication, including the roles of the state and the church in communication and the development of modern mass media.

COMM 225 Mass Communication 4 s.h.
Principles and techniques of mass communication. An introduction to the management of a mass communication agency and an overview of the mass media. Texts to be determined.

COMM 331 Order Communication in Politics 3 s.h.
Intermediate course in public speaking, stressing structure, organization, and effective use of language in persuasive situations.

COMM 332 Intercultural Communication 3 s.h.
Introduction to the study of intercultural communication. Topics include communication in business, diplomacy, and other professions.

COMM 333 Intergovernmental Communication 3 s.h.
Study of the political communication process. The course will focus on the role of government in the mass media and the ways in which government interacts with the media.

COMM 334 Public Relations in Politics 3 s.h.
Introduction to public relations as a profession. Topics include the role of public relations in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 335 Mass Media in Crisis 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 336 Mass Media in the Media Age 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 337 Communication and the Media 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 338 Communication in the Media Age 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 339 Political Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 340 Public Relations in Politics 3 s.h.
Introduction to public relations as a profession. Topics include the role of public relations in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 341 Organizational Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 342 Communication in the Media Age 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 343 Political Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 344 Public Relations in Politics 3 s.h.
Introduction to public relations as a profession. Topics include the role of public relations in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 345 Organizational Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 346 Political Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 347 Public Relations in Politics 3 s.h.
Introduction to public relations as a profession. Topics include the role of public relations in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 348 Organizational Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 349 Political Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 350 Public Relations in Politics 3 s.h.
Introduction to public relations as a profession. Topics include the role of public relations in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 351 Organizational Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 352 Political Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 353 Public Relations in Politics 3 s.h.
Introduction to public relations as a profession. Topics include the role of public relations in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.

COMM 354 Organizational Communication 3 s.h.
Study of the role of the mass media in times of crisis. Topics include the role of mass media in political campaigns, the use of public relations in political communication, and the role of the media in political campaigns.
participation, projects in social decision and action research, and graduate dissertation development.

30C.142 Interpersonal Communication Research 3 s.h. Introduction to interpersonal communication, research methods, and applications.

Communication Research

Degrees offered: M.A., Ph.D.

The program in communication research leads to the M.A. or the Ph.D. degree. Programs designed for individual students provide background for aid experience in research on interpersonal communication, group communication, and the mass media from a social science perspective. In addition to general departmental requirements, students take a major in related social sciences and select appropriate courses in the division from those listed below.

Courses

399.285 Contemporary Communication Theory 3-4 s.h. Examination of contemporary theories and criticisms of communication. Same as 399.285.

30C.212 Organizational Communication 3 s.h. Organizational communication, including communication processes within the organization, communication and social networks, and the role of communication in organizational decision making.

30C.212 Group Communication: Theory and Research 3 s.h. Group-level survey course, examines the major concepts, theories, and research trends in group communication, focusing on the integration of communication theory and perspectives with organizational theories and perspectives.

30C.212 Group Communication: Theory and Research 3 s.h. Group-level survey course, examines the major concepts, theories, and research trends in small group communication. Topics include group decision making, group dynamics, and group leadership.

30C.212 Development of Communication Research 3 s.h. Development of communication research, focusing on the integration of communication theory and perspectives with organizational theories and perspectives.

30C.212 Research Methods in Communication 3 s.h. Research methods in communication, focusing on the integration of communication theory and perspectives with organizational theories and perspectives.

30C.212 Communication Research 3 s.h. Research methods in communication, focusing on the integration of communication theory and perspectives with organizational theories and perspectives.

30C.212 Interpersonal Communication Theory 3 s.h. Theory and Research 3 s.h. Examination of contemporary theories and criticisms of communication. Same as 399.285.

30C.212 Professional Communication 3 s.h. Professional Communication 3 s.h. Examination of contemporary theories and criticisms of communication. Same as 399.285.

30C.212 Communication Research 3 s.h. Research methods in communication, focusing on the integration of communication theory and perspectives with organizational theories and perspectives.

30C.212 Communication Research 3 s.h. Research methods in communication, focusing on the integration of communication theory and perspectives with organizational theories and perspectives.

30C.212 Communication Research 3 s.h. Research methods in communication, focusing on the integration of communication theory and perspectives with organizational theories and perspectives.

30C.212 Communication Research 3 s.h. Research methods in communication, focusing on the integration of communication theory and perspectives with organizational theories and perspectives.

Rhetorical Studies

Professor in charge: Michael Colin McGee

Degrees offered: M.A., Ph.D.

The program in rhetorical studies leads either to the M.A. or the Ph.D. degree. It is built upon foundational courses in the history of rhetorical practices, the criticism of rhetorical discourse, and theoretical relationships between rhetorical activities and other dimensions of society. Some foundational courses in history and criticism are offered at the 200-level, and are listed under "Communication." Other courses are offered at the 300-level. Foundation courses in rhetorical theory are designed to survey bodies of academic writing about rhetoric, and are offered at the 300-level. Advanced courses in special area of rhetorical theory are offered at the 400-level. Practicum (500-level) and seminars (600-level) allow students to develop expertise in various historical, critical, and theoretical approaches to rhetoric and communication.

Master of Arts

The M.A. program in rhetorical studies stresses basic knowledge of rhetorical history, criticism, and theory. The goal usually is to prepare for work in the division in other parts of the department and University. The degree is intended to build a strong foundation for teaching in high schools and junior colleges or for proceeding to the doctorate. Efforts are made to tailor individual programs of study to students' needs and career goals. Minimal requirements for the M.A. in rhetorical studies include:

36,060 Introduction to Research:

At least 15 semester hours of courses in rhetorical studies, including a seminar (any course numbered 500 or above); At least 6 semester hours of courses in other division of this or related 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 rhetorical studies is designed to give candidates a mature grasp of the various specialties and perspectives emphasized 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, American studies, and journalism—enriches rhetorical studies course offerings. Many doctoral students also do extensive work in broadening their research interests or 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 opportunities are available; evaluation of these applications begins mid-February each year.

Courses

399.285 Critical Theories 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.

30C.212 Greek and Roman Public Address 3 s.h. Historical and critical study of public oratory and written communications from the fifth century B.C. to the third century A.D., including orators, rhetorical art, and early church orators.

30C.212 American Public Address 3 s.h. Historical and critical study of public oratory and written communications from the 16th century to the 20th century, including orators, rhetorical art, and contemporary cultures.

30C.212 Modern Public Address 3 s.h. Historical and critical study of public oratory and written communications from the 20th century to the present, including orators, rhetorical art, and contemporary cultures.

30C.212 History of Communication Theory from Plato to 1920 3 s.h. Same as 399.285.

30C.212 Rhetoric and Philosophy 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.

30C.212 Rhetoric and Social Theory 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.

30C.212 Rhetoric and Argument Theory 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.

30C.212 Rhetoric and Language Theory 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.

30C.212 Rhetoric and Communication Theory 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.

30C.212 Rhetoric and Communication Theory 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.

30C.212 Rhetoric and Communication Theory 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.

30C.212 Rhetoric and Communication Theory 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.

30C.212 Rhetoric and Communication Theory 3 s.h. Survey of important critical theories of communication, media, and society, introduction to the area of rhetorical/critical thinking.
Course work that investigates relationships among various national literary traditions and relations between literature and other arts (such as film, painting, or translation), as well as by theoretical inquiry into the nature of literature itself. Course work in comparative literature also emphasizes interdisciplinary relations between literature and other areas of study, such as history, philosophy, linguistics, anthropology, law, and psychology.

Degrees in comparative literature do not proceed through a strictly prescribed course curriculum toward the B.A. degree. Working closely with faculty advisors, students develop coherent, individualized programs of study that reflect their own interests and developing skills. In addition to completing General Education Requirements for the B.A. degree, majors complete a minimum of 36 semester hours courses distributed across three areas as follows:

Comparative Literature
Students should take 18 semester hours of courses as follows:
48.40-41 Major Tests in World Literature I-II 6 s.h.
48.50-52 Non-Western Literary Traditions 3 s.h.
48.90 Undergraduate Seminar 3 s.h.
48.100 Introduction to Critical Problems 3 s.h.
An elective comparative literature course at the 101 level 3 s.h.

Foreign Literature
Students should take 9 semester hours of courses in one foreign literature (read in the original language) beyond the core curriculum. To satisfy a major requirement in foreign language (one course in Composition and Conversation may count toward the major).

Related Areas
Students should take 6 semester hours of courses in a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or courses in a second foreign literature.

Minor
Students majoring in other disciplines may acquire a minor by successfully completing 15 semester hours of work in comparative literature, at least 12 semester hours of which must be in courses at the University of Iowa numbered 48.100 and above. There is no strict foreign language requirement for the minor.

Graduate Programs
Master of Arts
The degree of Master of Arts in comparative literature requires 36 semester hours of study of literature in an international context, concentrating on two in more national literatures and on the theory and study of literature in general. In consultation with faculty advisors, students construct courses in comparative literature and in the individual allied departments to form a coherent program of study.

Formal degree requirements may be satisfied by a written examination (oral reading lists agreed upon by students and their advisors, or by a written thesis and an oral examination on the thesis itself and its relation to problems and subjects in comparative literature. The M.A. may also be awarded after 45 semester hours of graduate study with a grade-point average of 3.50, and following successful completion of the comprehensive examination for the Ph.D.

Doctor of Philosophy
Students seeking the doctorate in comparative literature study at least three literatures, one studied in historical depth, and two others in limited areas of specialization. An interdisciplinary area of concentration is encouraged. All candidates devote a portion of their programs to comparative study that brings the several areas to focus. Specific areas and interrelations of these areas are selected by the student in consultation with appropriate faculty members.

Some typical critical and comparative areas are:
- European Renaissance
- Romanticism
- Structuralism and Poststructuralism
- Narrative theory in literature and film
- Symbolic poetics and modern literature
- Oral literature in antiquity and today
- Satire, rhetoric, and the theory of social interaction

The Ph.D. dissertation should demonstrate the candidate’s ability to write a substantial piece of scholarship or criticism. A translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral examination centers on the dissertation and its background.

Admission
The study of literature across linguistic boundaries requires special training in languages. A thorough knowledge of at least one foreign language is required for admission to the M.A. course of study. Knowledge of at least two foreign languages is a prerequisite for doctoral study.

For further information, consult the procedural guide for graduate students in comparative literature, available from the program office.

Courses
48.040 Cooperative Education Internship 1-6 s.h.
48.045 Major Tests in World Literature I 3 s.h.
48.050 Major Tests in World Literature II 3 s.h.
48.100 Introduction to Critical Problems 3 s.h.
48.110 Undergraduate Seminar 3 s.h.
48.120 Introduction to Critical Problems 3 s.h.
48.300 Introduction to Comparative Literature 3 s.h.
48.401-402 Major Tests in World Literature I-II 6 s.h.
48.403-404 Major Tests in World Literature I-II 6 s.h.
48.500-502 Non-Western Literary Traditions 3 s.h.
48.510-512 Introduction to Critical Problems 3 s.h.
48.520-522 Introduction to Critical Problems 3 s.h.
48.530-532 Introduction to Critical Problems 3 s.h.
48.540-542 Introduction to Critical Problems 3 s.h.
48.550-552 Introduction to Critical Problems 3 s.h.
48.560-562 Introduction to Critical Problems 3 s.h.
48.570-572 Introduction to Critical Problems 3 s.h.
48.580-582 Introduction to Critical Problems 3 s.h.
48.600-602 Introduction to Critical Problems 3 s.h.
48.610-612 Introduction to Critical Problems 3 s.h.
48.620-622 Introduction to Critical Problems 3 s.h.
48.630-632 Introduction to Critical Problems 3 s.h.
48.640-642 Introduction to Critical Problems 3 s.h.
48.650-652 Introduction to Critical Problems 3 s.h.
48.660-662 Introduction to Critical Problems 3 s.h.
48.670-672 Introduction to Critical Problems 3 s.h.
48.680-682 Introduction to Critical Problems 3 s.h.
48.690-692 Introduction to Critical Problems 3 s.h.
48.700-702 Introduction to Critical Problems 3 s.h.
48.710-712 Introduction to Critical Problems 3 s.h.
48.720-722 Introduction to Critical Problems 3 s.h.
school and for graduate study in fields such as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers undergraduate degrees—the Bachelor of Science (B.S.) and Bachelor of Arts (B.A.) in the College of Liberal Arts, and the Bachelor of Business Administration (B.B.A.) in the College of Business Administration. The B.A. and B.B.A. have similar major requirements. But their college requirements differ. The B.B.A. program is designed to provide a background in the business fields of accounting, finance, marketing, business law, and management. The B.S. program is designed to prepare the student for graduate work in economics or related business and technical fields. The B.A. program is designed for the student seeking a less technical liberal arts background.

Bachelor of Arts
These are the requirements for the B.A. degree with a major in economics:

- 225.25 Elementary Statistics and Inference
- 225.17 Quantitative Methods I and 225.28 Quantitative Methods II
- 225.17 Quantitative Methods I and 225.28 Quantitative Methods II
- Twenty semester hours of credit in 100-level economics courses, including GE.109 Microeconomics and GE.109 Macroeconomics.
- Most 100-level courses in economics have prerequisites both (IE.) of Principles of Microeconomics and IE.109 Principles of Macroeconomics, or senior standing.
- Credit awarded in GE.109 Price, Employment, and Production Theory cannot be counted toward the 20 semester hours of 100-level economics course credit required for the B.A. degree.

Bachelor of Science
The B.S. program in economics requires these courses:

- 225.23-25 Calculus I-III
- 225.120 Probability and Statistics or GE.183 Statistical Methods in Econometrics
- Twenty semester hours of 100-level economics courses, including GE.109 Microeconomics, GE.109 Macroeconomics, and GE.184 Methods of Quantitative Economics.
- Credit earned in GE.109 Price, Employment, and Production Theory or GE.183 Statistical Methods in Econometrics cannot be counted toward the required 20 semester hours of 100-level course credit.

Minor
The minor in economics requires at least 15 semester hours of credit in economics. Twelve of these semester hours must be taken at The University of Iowa in courses numbered 225.419 and above.

Honors Program
Students working toward the B.A. or B.S. degree with an economics major are encouraged to take part in the Honors Program in Economics. The Honors Program offers the high-achieving student an opportunity to pursue special research interests.

To enter this program, a student must have completed both GE.109 Microeconomics and GE.109 Macroeconomics, and must have an overall grade-point average of at least 3.5. Honors students enrolled in an honors seminar, write an honors thesis, and take an oral examination on their honors work. To graduate with honors, a student must maintain a 3.2 grade-point average. Interested students should consult the department honors advisor before the second semester of the junior year.

Bachelor of Business Administration
The program for the B.B.A. degree is described in the "College of Business Administration" section of the Catalog.

Course Work for Nonmajors
For nonmajors, departmental courses (IE.) of Principles of Microeconomics and IE.109 Principles of Macroeconomics satisfy the College of Liberal Arts general education requirement in social sciences and provide an introduction to specialized topics of upper-division study. Students with limited exposure to economics may require the lecture and laboratory parts of the following public policy issues in IE.109 Contemporary Economic Problems and Policy.

Course work in economics can be related to majors in many other fields—for example, history majors might take GE.1151 American Economic History and IE.109 Microeconomics; political science majors might take IE.1191 Economics of the Government Sector and IE.141 Economics of American Industries. A number of students combine related courses by majoring double majors in economics and in fields such as computer science, geography, history, mathematics, political science, sociology, or statistics.

Graduate Programs
The department offers Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degree programs. Each program has a separate theory and quantitative core enhanced by a set of field courses.

The M.A. degree program is designed to provide breadth in economic analysis without the requirement of specialization.

The M.A. program can be completed within 32 months.

Within the M.A. program, the department offers concentrations in econometrics, economic history of economic thought, international organization, international economics, labor economics, microeconomic theory, mathematical economics, monetary economics and policy, public finance, and regional and urban economics.

The Ph.D. program is designed to provide students with rigorous training in microeconomics, macroeconomics, mathematical methods, and econometrics. In addition, the student selects a wider area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years. See "College of Business Administration" section of the Catalog for details on requirements of these degree programs.

Special Seminar
Each year the department offers a seminar program involving eminent economists from other universities and government, as well as presentations by faculty and student members of the department.

Courses
Primarily for Undergraduates
Note: The following classes can be taken in any order or they may be taken simultaneously; they satisfy the College of Liberal Arts General Education Requirement in social sciences for non-economics majors.

- IE.109 Cooperative Internship (9 s.h.)
- IE.1 Principles of Microeconomics (3 s.h.)
- Organization and problems of modern economic systems, with emphasis on legal, social, and international aspects of contemporary problems. Prerequisite: admission to University major or minor in economics.
- IE.2 Principles of Microeconomics (3 s.h.)
- IE.109 Principles of Microeconomics, IE.109 Principles of Macroeconomics, and IE.191 Economic Analysis of Money and Capital, government finance, monetary and fiscal policy, business cycles, and development of international trade. Prerequisites: admission to University major or minor in economics.
- IE.3 Contemporary Economic Problems and Policy (3 s.h.)
- IE.109 Contemporary Economic Problems and Policy. Compliance with requirements for the Bachelor of Arts degree in economics.}

Graduate Programs
The department offers Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degree programs. Each program has a separate theory and quantitative core enhanced by a set of field courses.

The M.A. degree program is designed to provide breadth in economic analysis without the requirement of specialization.

The M.A. program can be completed within 32 months.

Within the M.A. program, the department offers concentrations in econometrics, economic history of economic thought, international organization, international economics, labor economics, microeconomic theory, mathematical economics, monetary economics and policy, public finance, and regional and urban economics.

The Ph.D. program is designed to provide students with rigorous training in microeconomics, macroeconomics, mathematical methods, and econometrics. In addition, the student selects a wider area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years. See "College of Business Administration" section of the Catalog for details on requirements of these degree programs.

Special Seminar
Each year the department offers a seminar program involving eminent economists from other universities and government, as well as presentations by faculty and student members of the department.

Courses
Primarily for Undergraduates
Note: The following classes can be taken in any order or they may be taken simultaneously; they satisfy the College of Liberal Arts General Education Requirement in social sciences for non-economics majors.

- IE.109 Co-operative Internship (9 s.h.)
- IE.1 Principles of Microeconomics (3 s.h.)
- Organization and problems of modern economic systems, with emphasis on legal, social, and international aspects of contemporary problems. Prerequisite: admission to University major or minor in economics.
- IE.2 Principles of Microeconomics (3 s.h.)
- IE.109 Principles of Microeconomics, IE.109 Principles of Macroeconomics, and IE.191 Economic Analysis of Money and Capital, government finance, monetary and fiscal policy, business cycles, and development of international trade. Prerequisites: admission to University major or minor in economics.
- IE.3 Contemporary Economic Problems and Policy (3 s.h.)
- IE.109 Contemporary Economic Problems and Policy. Compliance with requirements for the Bachelor of Arts degree in economics.}
Graduate Education

Undergraduate Programs

Bachelor of Arts

Creative Writing

Several undergraduates interested in the English major should consider the undergraduate study in the English department office, 306 English Philosophy Building. In the office, they also may obtain a pamphlet on "The English Major and other printing material explaining departmental programs, courses, and special events.

General Education Waivers for English Majors

Students who declare English majors are not required to take courses in English literature toward the General Education Requirement in humanities, but must take four semester hours of approved humanities course work outside of the department.

Minor

A minor in English requires 16 semester hours of course work in Department of English courses. Twelve of these semester hours should be in advanced courses (8-12 and above) taken at The University of Iowa. Courses for the liberal arts General Education Requirements do not contribute toward the minor in English.

HONORS

The English major with honors is designed to encourage talented students to explore a wide range of literary experience and to achieve a mastery of literary works. During the junior year, an honors student takes a special honors seminar in which the successful completion qualifies the student to continue in the program. Then the student uses the first semester of his or her senior year to complete an honors paper, either critical or creative, which is advised by any faculty member and evaluated by the honors committee. Honors study is planned in consultation with the chair of the honors in English and members of the honors committee. The honors seminar courses can be adapted to the student's needs, but students interested in earning honors in English are urged to consult the chair of honors as soon as possible.

Creative Writing

Many undergraduates come to The University of Iowa because of the excellence of its creative writing program. With the consent of his or her advisor, any student may elect the undergraduate course in this program. These are F&W 12 Creative Writing, F&W 151 Fiction Writing, and F&W 152 Poetry Writing.

Admission to the undergraduate workshops in fiction and poetry (F&W 151) Undergraduate Writers Workshop: Fiction and F&W 154 Undergraduate Writers Workshop: Poetry) is only by permission of the instructor. Students who wish to take part in these workshops must submit
sanguine of their poetry or fiction to the Western 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 majors planning to teach English in elementary and secondary schools. Students completing this program satisfy the requirements for a general major in English and for teaching certification.

Students who wish to be certified to teach English at lower secondary schools should select courses that fulfill the state guidelines for teachers of English in grades seven through twelve.

Literary study 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 adolescents, literature of American ethnic groups, literature by women, folklore, religion), 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 details of expression in English.

They will need advanced training in writing—nonfiction, fiction, and poetry, and fiction is all important—because these courses will help students understand and utilize linguistic, rhetorical, and stylistic devices in various kinds of writing.

They will need to understand the nature of the English language, including syntax, phonology, and semantics, because this knowledge is necessary to understand language development and how language can be used to express ideas. They will need to study various speaking and writing situations.

Since communication also occurs visually, students should explore the problems of reading, from the first stages of learning to read through advanced stages when a reader can increasingly understand and respond to details of meaning and many other aspects of the process of reading. That area can be satisfied by courses in the College of Education.

Prospective English teachers should remember that an undergraduate degree represents only minimal training, and that they should plan a program that will permit graduate study in a later time. English majors seeking teacher certification must plan with their advisors appropriate education courses that will be taken concurrently with courses in English. In addition, they must devote one semester of the senior year to professional training apart from any credit course work.

The department also participates in a joint major in English and elementary education. Those interested in such a program should consult their advisors in elementary education.

Students who seek certification for secondary teaching in fields other than English may seek additional methods courses in Spanish, French, or German. These students must complete one semester of language courses in English, excluding freshmen courses in rhetoric, speech, or writing.

The English minor certification program must include a course in each of these areas: advanced composition, linguistics, Shakespeare, American literature, and British literature of the nineteenth or twentieth centuries. In addition to the 20 semester hours of English, the student is required to take 78115 Methods: English in the College of Education's Division of Secondary Education.

While this program meets minimum requirements for certification, the department believes that advanced teaching to teach English should have considerably more training in the field.

Graduate Programs

Master of Arts (Literary Studies)

The M.A. in literary studies is a program for students who want to acquire an understanding of how it means to study literature professionally. Those who seek an M.A. in literary studies may include students wishing to "test the waters" before deciding whether to enter graduate study toward a Ph.D., others seeking to gain postgraduate education toward a specific career objective. All M.A. students are full participants in the community of the department and may enroll in any of its graduate courses or seminars.

The requirements for the degree are designed to give the student a general knowledge of the periods, movements, and major works of English and American literary history, to develop his or her sensitivity to language and expression, and to introduce some critical methods of literary study. Each of the requirements allows a wide choice of courses within the specified areas.

Elective courses, which constitute about one-third of the course work toward the degree, may be chosen from graduate courses both inside and outside the English department. The program's flexibility enables students, consulting closely with their advisers, to tailor their plan of study to the pattern of their interests. Depending on whether the student takes an examination or writes a thesis, the program requires either 30 or 32 semester hours of graduate level credit. 24 hours of which must be earned in residence with a grade-point average no lower than 3.5.

Course Requirements

Literary history (five courses: one each from five of six historical periods, at least one of which must be taken in or above the 200 level).

Language and writing (one course in the history, philosophy, psychology, or pedagogy of language or in the art or teaching of expository writing).

Critical methods (one course in critical theory or methodology).

Thesis or Comprehensive Examination

There are two ways of completing the program.

The usual conclusion is an 84-page written comprehensive examination based on a reading list drawn from the various periods of English and American literature. Students may obtain copies of the current reading list from the graduate secretary.

Students with strong academic records, solid writing skills, and a desire to explore a defined topic at length may petition the graduate committee for permission to write an M.A. thesis in literary studies. The thesis is a critical or scholarly work of about 10,000 words (approximately 40 pages) written under the supervision of a thesis counselor and requiring registration for (3 or 5 semester hours of credit above the 30 hours of required core coursework.

Students who receive permission to proceed must assemble a thesis committee, receive the committee's approval of the thesis proposal, and pass an oral defense of the completed thesis.

Master of Arts (Expository Writing)

This program emphasizes the theory, analytical practice, and pedagogy of expository writing for students wishing to become teachers or critics or expository writing, or professional writers in areas such as the humanities, journalism, and technical fields, or free-lance writing. Normally, the program takes from three to four semesters to complete.

To qualify for the M.A. with an emphasis in expository writing, a student must complete 30 semester hours of graduate work with a grade-point average no lower than 3.0. At least 24 of these semester hours must be earned in residence at The University of Iowa, including 12 semester hours of work in advanced composition with a grade of B or better. In addition to the 30
semester hours of course work, students will be required to complete at least 3 and no more than 6 semester hours of credit for the thesis.

In consultation with an advisor, the student will design an approved program of courses. These plans of study may be highly individual, including courses from widely different areas of college and university, but must be coherently organized around the student's interests and objectives as a writer.

Finally, the student will submit to his or her advisor a thesis, which will be an extended piece of exposition writing; there will be an oral examination covering the project, and the finished thesis must receive the committee's final approval.

Students interested in this program should consult the director of the M.A. with emphasis in expository writing.

Master of Fine Arts

The purpose of the M.F.A. program is to provide professional guidance and a stimulating environment for students with proven achievement in or notable promise in writing poetry or fiction. The requirements, which are flexible, usually include 48 semester hours of graduate credit, earned chiefly in the Writers Workshop: a broad-length collection of poems or short stories or a novel, and satisfactory performance on an examination on modern poetry or fiction.

Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and editorial work of college and university faculty members. The doctorate requires 72 semester hours of graduate credit, of which at least 30 must be earned in residence at The University of Iowa.

Concentrations are possible in areas of literary history, literary criticism, writing, rhetorical theory and stylistics, philosophy, bibliography, pedagogy, comparative literature, and linguistics.

Requirements for the Ph.D. include:

- Formal admission to candidacy by a vote of the full faculty of the department;
- Demonstration of a high level of competence in two foreign languages or mastery of a single foreign language and its literature; - Three seminars;
- A part-written, part-oral comprehensive examination in three areas, one of which must be a historical period of English and American Literature;
- A dissertation, which may be either a scholarly work or a piece of imaginative writing; and
- A final examination in defense of the dissertation.

All doctoral candidates are encouraged to gain teaching experience, preferably in the English and General Education in Literature programs of the College of Liberal Arts.

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 stipends are limited, normally fewer than half of the new doctoral students receive aid. Most, but not all, advanced doctoral students receive support.

Financial aid applications are considered only from students who have been admitted to a Ph.D. program in the Graduate College. Applications and all necessary supporting material must be submitted by February 1 for the following academic year. Forms are available from the department and the University Office of Admissions.

Admission

For admission requirements, obtain the hardbound entitled "Special Requirements and Information/Graduate Admissions" from the English department graduate office, 320 English-Philosophy Building.

Writing Programs

For the past 50 years, The University of Iowa has been a national leader in virtually all areas of the teaching of writing. In 1952 it became the first institution of higher education to accept creative dissertations for advanced degree programs.

Founded in 1956, the Iowa Workshop was a pioneer in the field of creative writing. It numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors, and also brings numerous prominent authors to campus each year for lectures and readings.

The International Writing Program, founded in 1956, brings numbers of prominent international writers to campus each year.

The University of Iowa also has a leader in the area of expository writing and rhetorical theory. It is one of the few academic institutions in the nation that offers a full range of graduate courses in this area.

Facilities

The University Library is strong in all areas of English and American literature. In part because of the influence of the Writers Workshop, the library has particular strengths in twentieth-century fiction and poetry, including manuscript collections of twentieth-century authors.

The Zimmer Reading Room (the departmental library) has a small but select collection of books and journals for use by faculty and students.

Several periodicals are published under the department's aegis: The Iowa Review, The Matrix Quarterly, The Witness Quarterly, and Princeton Quarterly. These journals offer opportunities for especially qualified graduate students as research assistants or editorial associates. The Iowa Journal of Literary Studies is edited by graduate students in the department and features creative and scholarly work by students in English and related areas.

The Woodrow House, which publishes fine editions of works by contemporary authors, is also housed in the department; it offers to qualified students opportunities to learn the art of fine printing.

The Department of English, the Writers Workshop, and the International Writing Program sponsor a rich and extensive series of readings and lectures by poets, fiction writers, and scholars. Normally a week goes by when there are not two or three such literary events, all of them open to students in the department.

The Association of Graduate Students in English sponsors various social and intellectual events during the year and provides a forum for student opinion. All graduate students in the department are members.

Courses

Individual descriptions of many of the English courses have been included because the content and emphasis of many courses varies considerably from one semester to another. Course descriptions for all offerings in a specific semester are supplied in the English department office well in advance of the beginning of each semester.

General Education Literature

The General Education Requirements in the humanities may be satisfied by taking 107.1 The Interpretation of Literature, and two other approved humanities courses. RGl (or its equivalent by examination or transfer) is acceptable for the other courses (RG2 through RG15), and therefore must be taken first. The pass-no-pass option is available only for students in the colleges of Nursing and Engineering (with the consent of the student's adviser and the instructor). Anyone wishing to fulfill the
Expository Writing

General Interest These courses are designed to serve the general interests and needs of undergraduates and graduates in all areas of the University. They offer practice in various elements of composition and various kinds of informative, persuasive, and expository writing.

EW-10 Expository Writing 2 s.h.
EW-15 Technical and Scientific Writing 2 s.h.
EW-181 Greek and Latin for Vocabulary Building 2 s.h.
EW-182 Grammar and Style 3 s.h.
EW-184 Personal Writing 3 s.h.
EW-185 Writing for Formal and Public Purposes 3 s.h.
EW-189 Advanced Expository Writing 3.5 s.h.

Special Interest Those courses are designed to serve the special interests and needs of advanced undergraduates and graduates in particular academic and professional areas of the University. They offer practice in specialized forms of writing for specialized purposes and audiences.

EW-111 Writing for the Humanities 3 s.h.
EW-112 Writing for the Sciences 3 s.h.
EW-113 Writing for Business and Industry 3 s.h.
EW-114 Writing for the Social Sciences 3 s.h.
EW-115 Writing for the Arts 3 s.h.
EW-120 Extended Prose: Non-Journalistic Writing 3 s.h.
EW-121 Forms of Writing 3 s.h.
EW-122 Poetry Writing 3 s.h.
EW-126 Free-Lance Writing 3 s.h.
EW-129 Free-Lance Workshop Same as 126 3 s.h.

EW-135 Expository Seminar in Creative Writing 3 s.h.
EW-136 Expository Seminar in Expository Writing 3 s.h.
EW-137 Computer Test Editing 1.5 s.h.
EW-138 Undergraduate Project in Expository Writing 3 s.h.
EW-140 Form of the Essay 3 s.h.
EW-142 Essay Writing Workshop 3 s.h.
EW-146 Critical Writing 3 s.h.

Creative Writing

General Interest These courses are designed to serve the general interests and needs of undergraduates and graduate students in all areas of the University. They offer practice in various elements and forms of creative writing.

EW-130 Creative Writing 3 s.h.
EW-140 History and Theory of Translation 3 s.h.
EW-141 Fiction Writing 3 s.h.
EW-146 Free-Lance Writing 3 s.h.
EW-130 Advanced Fiction Writing 3 s.h.

Professional Workshop These courses are designed to serve special needs and interests of undergraduate and graduate students who have substantial background and experience in a specific area of creative writing. They are open only to students who have received permission of the instructor or who have been admitted to work in the Writers Workshop.

EW-117 Playwrights Workshop 3 s.h.
EW-118 Undergraduate Writers Workshop: Fiction 3 s.h.
EW-119 Undergraduate Writers Workshop: Poetry 3 s.h.
EW-120 Poetry Workshop 3 s.h.
EW-120 Transition Workshop Since 1980, 2-3 s.h.

Exercise Science and Physical Education

Chair: Gary Hasen
Professors: James G. Andrews, Caron M. Andryc, Donald B. Coady, Carl V. Condell, James G. Hay, Jerry A. Maynard
Adjunct professor: Charles M. Tipton
Professor emeriti: Lewis E. Allen
Associate professors: Gary F. Hamson, David K. Levine
Associate professors emeriti: N. Richard Ruskamp, Donald O. Reale, Arthur J. Wondrash
Assistant professors: Thomas N. Baxley, John C. Bruce, Warren O. Darby
Assistant in instruction: Diane D. Banks, Donna T. Frey, Steve M. Hammen, Hillary Hay, John D. Hensley, Robert Lul, Glenn S. Patton, Warner G. Dickens, Thomas E. Wilken
Lecturer: Robert R. Martin
Degrees offered: B.S., M.A., Ph.D.

The Department of Exercise Science and Physical Education offers Bachelor of Science degree programs in exercise science and physical education. The graduate programs include the Master of Arts degree without thesis, the Master of Arts degree with thesis, and the Ph.D. degree. Students may select from nine different areas of specialization for the M.A. with thesis and the Ph.D.

Undergraduate Programs

Bachelor of Science degree programs provide preparation for continuing education at the graduate level, careers in business, careers related to physical fitness and wellness, and elementary and secondary school teaching and athletic coaching.

Candidates for the B.S. degree in physical education are expected to satisfy the College of Liberal Arts General Education Requirement in natural sciences by taking Chemistry 6.7 and Animal Biology 38-17. The social and technological Education Requirement should be satisfied by taking 315 Elementary Psychology and, for
students in the teacher education program, 30.5 for introduction to American Politics.
Candidates for the B.S. degree in exercise science are expected to satisfy the College of Liberal Arts General Education Requirement in natural sciences by taking Chemistry 413-414 and Principles of Animal Biology 37.3. The social sciences General Education Requirement should be satisfied by taking 31.3 Elementary Psychology.

Bachelor of Science in Exercise Science

The B.S. degree in exercise science is designed primarily for students who intend to pursue advanced degrees in an exercise science specialization or to seek admission to a professional program in medicine, dentistry, or physical therapy. The specializations in the program are: anatomy, biomechanics, exercise physiology, and neural control.

Qualifications for admission include completion of a minimum of 60 semester hours of course work with a cumulative grade-point average of 2.3 or higher, attainment of a cumulative grade-point average of 3.0 or higher for the following core courses: 101, 102 or 103, 413, 414, 22M15 or 22M25, 217, 217.5, 27.

Exercise science majors must complete the following core courses plus all courses in their elected specialization.

TFS 143 Introduction to Statistical Methods 3 sh.
22C 1 Introduction to Computing with FORTRAN 3 sh.
21.3 1 Cells, Structure and Function 3 sh.
21.12 College Physics 4 sh.
21.13 Animal Physiology 5 sh.
72.130 Human Physiology 4 sh.
or
72.140 Human Physiology 4 sh.
or
75.150 Intermediate Physiology 4 sh.

The following courses should be completed prior to the senior year:

21.53 Human Anatomy 3 sh.
21.197 Basic Human Motion 4 sh.
21.141 Exercise Physiology 3 sh.
21.142 Exercise Physiology Laboratory 1 sh.

Course requirements for the sub-catalogues in Exercise Science are listed below.

Anatomy Specialization:

21.197 The Qualitative Analysis of Human Motion 4 sh.
21.190 Neural Basis of Movement 3 sh.
21.194 Exercise Science Senior Seminar 2 sh.
21.12 Cell, Tissue, and Organ Biology 5 sh.

21.25 Laboratory in Advanced Anatomy 6 sh.
Preprofessional students should take the following in place of 27.25 Laboratory in Advanced Anatomy, Laboratory.

27.16 Comparative Vertebrate Anatomy 4 sh.
or
27.150 Introductory Endocrinology 2 sh.

27.152 Exercise Laboratory 2 sh.

Biomechanics Specialization:

57.7 Statics 2 sh.
22M.6 Calculus II 4 sh.
or
22M.66 Engineering Calculus II 4 sh.
27.157 The Qualitative Analysis of Human Motion 3 sh.
27.196 Exercise Science Seminar 2 sh.
57.10 Dynamics 3 sh.
57.197 Mechanics of Deformable bodies 3 sh.

Exercise Physiology Specialization:

41.121 Organic Chemistry I 3 sh.
41.122 Organic Chemistry II 3 sh.
27.190 Neural Basis of Movement 5 sh.
27.194 Exercise Science Seminar 2 sh.
27.150 Introductory Endocrinology 2 sh.
57.152 Exercise Laboratory 2 sh.
99.11 Biochemistry 3 sh.

Neural Control Specialization:

27.153 Advanced Anatomy and Physiology 3 sh.
27.157 The Qualitative Analysis of Human Motion 3 sh.
27.190 Neural Basis of Movement 3 sh.
27.194 Exercise Science Seminar 2 sh.
27.197 Cell, Tissue, and Organ Biology 3 sh.
27.180 Introduction to the Neurosciences 3 sh.
37.181 Neuropsychology 3 sh.

Bachelor of Science in Physical Education with Teacher Certification

This degree requires the following courses in physical education:

28.19 Orientation to Physical Education and Dance 0-1 sh.
27.18 Orientation to Physical Education 0 sh.
27.16 First Aid and CPR 3 sh.
38.40 Anatomy 3 sh.
21.53 Human Anatomy 3 sh.
27.170 Biomechanics of Physical Education 3 sh.
27.141 Exercise Physiology 4 sh.
27.105 Physical Education for Special Students 3 sh.
28.120 Administration of Physical Education and Athletics 2 sh.
27.109 Administration and Curriculum in Physical Education 3 sh.
27.142 Contemporary Issues of Health Education 3 sh.
27.109 Teaching Motor Skills 3 sh.
28.148 Artic and Social Dimensions of Sport 3 sh.
27.110 Human Growth and Movement Development 2 sh.

27.111 Growth and Motor Development 2 sh.
27.112 Skill Component in Physical Education I 2 sh.
27.113 Skill Component in Physical Education II 2 sh.
27.114 Multidimensional Physical Education 4 sh.
Teaching certification majors who want to qualify for the athletics coaching endorsement also are required to take the following three courses:
27.57 Basic Athletic Training 3 sh.
27.157 Administration of Athletics 2 sh.
27.108 Coaching Practicum 2 sh.

Professional education courses required for teacher certification are:

76.107 Methods and Materials in Elementary School Physical Education 2 sh.
75.165 Educational Psychology and Measurement 3 sh.
76.122 Introduction to Teaching English and Speech 2 sh.
27.142 Document Analysis 3 sh.
57.150 Review of Education 2 sh.
27.146 Secondary Physical Education 3 sh.
75.155 Human Relations for the Classroom Teacher 3 sh.
27.142 Student's Curriculum and Student Teaching 1 sh.
37.180 Observation and Laboratory Practicum in the Secondary School 6 sh.
27.130 Laboratory in Elementary School 6 sh.

Bachelor of Science in Physical Education without Teacher Certification

The Bachelor of Science degree in physical education without certification is offered either as a general major or as a major with emphasis on business, fitness-wellness, or athletic training.

Students must complete the following core requirements and additional courses in the selected emphasis. (Athletic training program students are exempt from the core requirements.)

21.197 Cell, Tissue, and Organ Biology 5 sh.
27.23 Skill Component in Physical Education 3  s.h.
27.23 Human Anatomy 3  s.h.
27.26 First Aid and CPR 2  s.h.
27.27 Basic Athletic Training 3  s.h.
27.27 Biomechanics of Physical Education 3  s.h.
27.108 Teaching Motor Skills 3  s.h.
27.110 Human Growth and Motor Development 2  s.h.
72.120 Human Physiology 4  s.h.

General Major
Students who elect the general major in physical education without teacher certification must complete the core requirements listed above and the following courses:
27.101 Administration and Curriculum in Physical Education 3  s.h.
27.105 Physical Education for Special Students 3  s.h.
27.83 Psychosocial Dimensions of Sport 3  s.h.
28.142 Contemporary Issues in Health Education 3  s.h.
27.137 Administration of Athletics 2  s.h.

Business Emphasis
Students who elect the physical education degree program with business emphasis must complete the core requirements for physical education, 16 semester hours of approved courses in the College of Business Administration, an internship, and the following courses:
17.41 Food, Nutrition, and You 3  s.h.
27.140 Exercise Physiology for Practitioners 3  s.h.

Fitness-Wellness Emphasis
Students electing the physical education degree program with physical fitness-wellness emphasis must complete the core requirements in physical education, an internship, and the following courses:
17.41 Food, Nutrition, and You 3  s.h.
27.112 Physical Activity and Aging 3  s.h.
27.140 Exercise Physiology for Practitioners 3  s.h.
28.168 Fitness for Adults 2  s.h.
28.142 Contemporary Issues in Health Education 3  s.h.
71.120 Drugs: Their Nature, Action, and Use 2  s.h.

Athletic Training Emphasis
This program provides specialized training for students who wish to concentrate their studies in athletic training and become certified athletic trainers. It meets the certification standards of the National Athletic Trainers Association. Employment opportunities include being a trainer for a professional team or at a college or secondary school. Students may elect to complete professional education courses to qualify for certification as a secondary school teacher.

Graduate Programs
Master of Arts without Thesis
The program leading to the M.A. degree without thesis is designed as a terminal unit of advanced study for physical education teachers and for athletic coaches. Emphasis is on applying research findings to the organization, teaching, and evaluation of basic physical education programs for all students in schools and colleges, and to coaching interscholastic and intercollegiate athletic teams. The program focuses on problems associated with teaching and coaching in public schools and community colleges.

Graduate Programs
Master of Arts without Thesis
The program leading to the M.A. degree without thesis is designed as a terminal unit of advanced study for physical education teachers and for athletic coaches. Emphasis is on applying research findings to the organization, teaching, and evaluation of basic physical education programs for all students in schools and colleges, and to coaching interscholastic and intercollegiate athletic teams. The program focuses on problems associated with teaching and coaching in public schools and community colleges.

Athletic Coaching Endorsement
The Iowa Department of Public Instruction requires that athletic coaches be certified. The following program has been approved by the Department of Public Instruction:
27.120 Human Anatomy 3  s.h.
28.168 Anatomy 3  s.h.
27.156 First Aid and CPR 2  s.h.
27.27 Basic Athletic Training 2  s.h.
27.101 Human Growth and Motor Development 2  s.h.
27.171 Exercise Physiology for Practitioners 3  s.h.

Minor in Physical Education
The minor in physical education requires a minimum of 15 semester hours. Students are required to take the following five courses:
27.101 Administration and Curriculum in Physical Education 3  s.h.
27.110 Human Growth and Motor Development 2  s.h.
27.108 Teaching Motor Skills 3  s.h.
27.140 Exercise Physiology for Practitioners 3  s.h.

Athletic Coaching Endorsement
The Iowa Department of Public Instruction requires that athletic coaches be certified. The following program has been approved by the Department of Public Instruction:
27.53 Human Anatomy 3  s.h.
28.80 Anatomy 3  s.h.
27.56 First Aid and CPR 2  s.h.
27.57 Basic Athletic Training 2  s.h.
27.711 Exercise Physiology for Practitioners 3  s.h.
Sleeping: 2  s.h.
27.171 Exercise Physiology for Practitioners 3  s.h.
27.101 Human Growth and Motor Development 2  s.h.
27.120 Human Anatomy 3  s.h.
28.168 Anatomy 3  s.h.
27.156 First Aid and CPR 2  s.h.
27.27 Basic Athletic Training 2  s.h.
27.171 Exercise Physiology for Practitioners 3  s.h.
27.101 Human Growth and Motor Development 2  s.h.
27.171 Exercise Physiology for Practitioners 3  s.h.
27.101 Human Growth and Motor Development 2  s.h.
Practice teaching (or equivalent) 3 s.h.
Teaching of adults in physical education 4 s.h.
Coaching of a sport 1 s.h.
Electives in physical education and related areas 11 s.h.
Total 39 s.h.

For the M.A. degree without thesis, students must complete a minimum of 30 credit hours—least 24 of which must be in physical education, including 27.201 Non-thesis Seminar—and at least one course from each of these three groups:

27.105 Physical Education for Special Students 3 s.h.
27.157 Measurement and Evaluation in Physical Education 3 s.h.
27.242 Supervision of Physical Education 3 s.h.
27.237 Public School Curriculum in Physical Education 2-3 s.h.
27.451 The Qualitative Analysis of Human Motion 3 s.h.
27.140 Exercise Physiology for Practitioners 3 s.h.

Master of Arts with Thesis

The thesis program leading to the M.A. degree in physical education is designed primarily as a first step in graduate study leading to the doctorate. It also provides advanced preparation for those who are teaching undergraduate physical education in four-year colleges, but do not plan to pursue doctoral work.

The thesis program for the M.A. degree in physical education is a research-oriented program. Students receive an introduction to the nature and extent of research in physical education, and have an opportunity to specialize in an area of interest.

Because the M.A. degree with thesis is regarded as the first step toward the Ph.D. in one of nine areas of specialization, the undergraduate course work required depends on the area in which the candidate intends to specialize for the Ph.D. Specific courses in mathematics, chemistry, physics, biology, psychology, or physiology are required in some areas of specialization. These courses must be approved by the director of the area of specialization selected by the candidate, and by the M.A. advisor.

The following courses are required for the M.A. degree with thesis:

Two courses outside the area of specialization, from the following:
27.141 Exercise Physiology 3 s.h.
27.142 Exercise Physiology Laboratory 1 s.h.
27.153 Advanced Anatomy and Kinesiology 2 s.h.
27.157 Biomechanics of Human Motion 4 s.h.
27.205 Adapted Physical Education: Special Topics and Research 3-4 s.h.
27.242 Supervision of Physical Education 3 s.h.
27.387 Advanced Measurement and Evaluation in Physical Education 3 s.h.
27.337 Seminar: Research Models and Theory in Physical Education 3 s.h.
27.491 Seminar in Scientific Writing 3 s.h.
These two courses are required:
7.145 Introduction to Statistical Methods 3 s.h.
or
63.161 Introduction to Biostatistics 3 s.h.
or
22.100 Introduction to Computing with FORTRAN 2 s.h.
or
27.148 Data Processing 3 s.h.
Specialization area:
27.404 Thesis: M.A. Specialization courses approved by the director 4-6 s.h.
Electives 4-5 s.h.
Total 39 s.h.

Doctor of Philosophy

Ph.D. candidates in physical education should have a general knowledge of all areas of physical education, a working knowledge of the research techniques applicable to problems in physical education and athletics, and in-depth knowledge in at least one area of specialization in physical education.

The specialization offered in physical education include adapted physical education, administration and supervision in physical education, anatomy, biomechanics, curricular in physical education, exercise physiology, measurement and evaluation in physical education, motor control, and therapeutics.

The thesis program for the M.A. degree in physical education, together with the Ph.D. core courses, provide the required background for the Ph.D. candidate's specialization. Candidates must complete at least 30 semester hours of graduate study in specialization, must write a thesis on a problem in that area, and must submit the thesis to an approved professional journal for publication.

Many of the courses in the specialization areas are offered by departments other than the Department of Exercise Science and Physical Education. Professors from these departments participate in writing and evaluating the comprehensive examinations, serve on thesis committees for the initial presentation of the proposed problem, and participate in the final examination, in which candidates defend their theses.

In addition to writing a comprehensive examination and dissertation, candidates specializing in exercise physiology write a comprehensive examination prepared and evaluated by faculty members of the Department of Physiology and Biochemistry in the College of Medicine. These candidates graduate with minors in physiology.

The Ph.D. core requirements include:
27.405 Thesis: Ph.D. 12 s.h.
or
27.242 Selected Applications of Statistical Techniques 3 s.h.
or
27.243 Intermediate Statistical Methods 4 s.h.
or
63.162 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.
27.202 Practicum in College Teaching 3 s.h.
or
27.248 Data Processing 3 s.h.
or
22.100 Introduction to Computing with FORTRAN 2 s.h.
Candidates must complete a minimum of 30 semester hours of required and elective courses in their specialization. The required courses by area specialization are:

Adapted Physical Education
71.130 Exceptional Persons 3 s.h.
27.201 Research 3 s.h.
27.205 Adapted Physical Education: Special Topics and Research 3-4 s.h.
60.108 Human Anatomy 4 s.h.
60.109 Human Anatomy and Neuroanatomy 4 s.h.

Administration and Supervision in Physical Education
7.220 Supervision of Physical Education 3 s.h.
70.201 Foundations of School Administration 3 s.h.
27.201 Research 4 s.h.
or
27.207 Advanced Administration of Physical Education 3 s.h.
or
27.227 Advanced Administration of Athletics 3 s.h.

Anatomy
27.253 Laboratory in Advanced Anatomy 6 s.h.
60.210 Neuroanatomy for Graduate, Students 4 s.h.
or
60.217 Developmental Anatomy 2 s.h.
or
37.112 Clinic, and the Organ 5 s.h.

27.202 Practicum in College Teaching 2-6 s.h.
or
27.153 Advanced Anatomy and Kinesiology 2 s.h.
27.295 Electrophysiology in Kinesiology and Biomechanics 3 s.h.
or
99.110 Biochemistry 3 s.h.

Biomechanics
57.119 Mechanics of Deformable Bodies 4 s.h.
57.20 Mechanics of Fluids and Transfer Processes 4 s.h.
or
57.21 Principles of Design I 3 s.h.
or
59.155 Intermediate Dynamics 3 s.h.
or
60.108 Human Anatomy 4 s.h.

Exercise Science and Physical Education/LIBERAL ARTS 105
Therapeutics

Prerequisites are listed under physical therapy Master of Arts required courses in
and Exercise Science.

Required Courses...

101.212 Biomedical Instrumentation 3 s.h.

Curriculum in Physical Education

7E.901 Design and Organization of Curriculum 3 s.h.

112.901 Secondary School Curriculum 3 s.h.

7P.181 Introduction to Theories of Education 3 s.h.

7B.201 Research 3 s.h.

28.253 Educational Basis of Curriculum Construction 3 s.h.

Exercise Physiology

37.112 Cell, Tissue, and Organ Biology 5 s.h.

or

60.205 General Botany for Graduate Students 4 s.h.

71.152 Endocrinology Laboratory 2 s.h.

71.105 Pharmacology for Health Sciences 5 s.h.

27.302 Physiology of Exercise Laboratory 2 s.h.

72.212 Medical Physiology 6 s.h.

72.274 Exercise Physiology Seminar 2 s.h.

99.130 Metabolism 3 s.h.

72.234 Neuroscience 4 s.h.

Measurement and Evaluation

7P.243 Intermediate Statistical Methods 4 s.h.

and

7P.284 Correlation and Regression 3 s.h.

225.153 Introduction to Probability and Mathematical Statistics 3 s.h.

226.154 Introduction to Experimental Statistics 3 s.h.

226.155 Design of Experiments 4 s.h.

7P.255 Construction and Use of Evaluation Instruments 3 s.h.

58.255 Educational Measurement and Evaluation 3 s.h.

27.367 Seminar: Research in Measurement and Evaluation in Physical Education 3 s.h.

Motor Control

27.201 Research 5 s.h.

27.190 Neurophysiology of Movement 3 s.h.

27.295 Electrophysiology in Neurophysiology and Biomechanics 3 s.h.

55.131 Introduction to Neurophysiology 3 s.h.

57.180 Introduction to the Neurophysiology, Anatomy, and Exercise Science.

Therapeutics

Prerequisites are listed under physical therapy Master of Arts required courses in
and Exercise Science.

Required Courses...

101.212 Biomedical Instrumentation 3 s.h.

Curriculum in Physical Education

7E.901 Design and Organization of Curriculum 3 s.h.

112.901 Secondary School Curriculum 3 s.h.

7P.181 Introduction to Theories of Education 3 s.h.

7B.201 Research 3 s.h.

28.253 Educational Basis of Curriculum Construction 3 s.h.

Exercise Physiology

37.112 Cell, Tissue, and Organ Biology 5 s.h.

or

60.205 General Botany for Graduate Students 4 s.h.

71.152 Endocrinology Laboratory 2 s.h.

71.105 Pharmacology for Health Sciences 5 s.h.

27.302 Physiology of Exercise Laboratory 2 s.h.

72.212 Medical Physiology 6 s.h.

72.274 Exercise Physiology Seminar 2 s.h.

99.130 Metabolism 3 s.h.

72.234 Neuroscience I 4 s.h.

Measurement and Evaluation

7P.243 Intermediate Statistical Methods 4 s.h.

and

7P.284 Correlation and Regression 3 s.h.

225.153 Introduction to Probability and Mathematical Statistics 3 s.h.

226.154 Introduction to Experimental Statistics 3 s.h.

226.155 Design of Experiments 4 s.h.

7P.255 Construction and Use of Evaluation Instruments 3 s.h.

58.255 Educational Measurement and Evaluation 3 s.h.

27.367 Seminar: Research in Measurement and Evaluation in Physical Education 3 s.h.

Motor Control

27.201 Research 5 s.h.

27.190 Neurophysiology of Movement 3 s.h.

27.295 Electrophysiology in Neurophysiology and Biomechanics 3 s.h.

55.131 Introduction to Neurophysiology 3 s.h.

57.180 Introduction to the Neurophysiology, Anatomy, and Exercise Science.

Three courses must be selected from the following areas: computer science, neuroscience, biomechanics, anatomy, and exercise science.
27.125 The Qualitative Analysis of Human Matter 3 s.h.
Pharmaceutics, 27.140. Offered spring semester.

27.140 Physical Education for Elementary Schools 3 s.h.
Offered winter semester. Same as 19.140.

27.150 Principles of Motor Learning and Control 4 s.h.
Offered spring semester.

27.157 Measurement and Evaluation in Physical Education 3 s.h.
Offered spring semester.

27.171 Neurobehavioral Science in Physical Education 3 s.h.
Offered spring semester.

27.182 Clinical Sciences in Athletic Training I 3 s.h.
Offered fall semester. Prerequisite: 27.352.

27.183 Clinical Sciences in Athletic Training II 3 s.h.
Offered spring semester. Prerequisite: 27.182.

27.194 Seminar in Athletic Training 3 s.h.

Primarily for Graduates

27.199 Neural Basis of Movement 3 s.h.
Study and diagnosis of neural circuits underlying the control of movement, especially its control and introduction to a selection of current research on both cognitive aspects of motor control. Recent methods of measurement and the current concepts of normal and disordered motor control. Prerequisites: PHY 121 and 27.100 or consent of instructor.

27.196 Service Science Seminar Seminar 3 s.h.
Offered in Spring and Fall. Corequisite seminar. Same as 27.196.

27.197 Biomechanics of Human Motion 3 s.h.

27.198 Problems 3 s.h.

27.201 Research 3 s.h.
Consult departmental head before registering.

27.202 Practicum in College Teaching 3 s.h.

27.205 Professional Administration of Physical Education 3 s.h.
Offered fall semester.

27.205 Applied Physical Education: Special Topics and Research 3 s.h.
Offered fall semester. Prerequisites: 27.237 and 27.238.

27.206 Testing in the Sport Science 3 s.h.
Experiential lab course designed to teach students about a series of selected research experiences. Offered in Spring. Prerequisite: Consent of instructor.

27.207 Advanced Administration of Physical Education 3 s.h.
Offered fall semester.

27.207 Advanced Administration of Athletics 3 s.h.
Offered fall semester.

27.217 Physical Education Curriculum in Physical Education 3 s.h.
Offered fall semester. Same as 17.431 and 17.440.

27.229 Professional Preparation in Physical Education 2 s.h.
Provides students with the ability to meet the background in preparation for professional work in the field of physical education. Offered fall semester.

27.231 Laboratory in Advanced Anatomy 6 s.h.

27.232 Human Development and Biomechanics 3 s.h.
Introduction to anthropometric and gait for physical education programs. Offered spring semester. Same as 17.232.

27.233 Biomechanics of Human Motion 3 s.h.

27.260 Non-Thesis Seminar 3 s.h.
Required of candidates for M.A. with thesis. Offered spring semester.

27.263 Philosophy of Exercise Laboratory 3 s.h.

27.331 Internship in Exercise Study 3 s.h.
Offered fall semester.

27.335 Seminar in Motor Control 2 s.h.
Offered spring semester.

French and Italian

Dean: J. A. Van Hees, Ph.D.

French and Italian

Undergraduate Programs

The department's purpose is to introduce students to the cultures of France and Italy, provide an understanding of those countries' historical and contemporary importance, facilitate development of proficiency in the French and Italian languages, and foster critical appreciation of their literature and civilization.

The department offers a variety of programs of majors in French and Italian, elective for nonmajors with prerequisite linguistic skills, and flexible means to meet the foreign language General Education Requirement of the College of Liberal Arts and to satisfy individual needs and interests.

Students majoring in French or Italian may continue their studies with courses in education (see the "College of Education" section of the Catalog) to prepare for jobs in high school teaching. They may go on to graduate study in areas such as French, comparative literature, or history in preparation for college-level teaching. Or, in combination with other skills and studies, a major in French or Italian may prepare the student for challenging career opportunities in the international areas of government, business, finance, travel, or communications, where knowledge of a foreign language is essential.
Bachelor of Arts in French

The undergraduate major in French may be completed with an emphasis in literature, civilization, teaching, or applied French. Courses taught in English do not count as credit toward the French major; nor does a grade of "D" in any required French course.

Literature Track

Designed for students who are interested in French literature or in combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts, the literature track requires a total of 35 semester hours of credit in French, including:

- 9:105-106 Second-Year Composition and Conversation 8 s.h.
- 9:111-112 Third-Year Composition 6 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:130 French Conversation: Fourth Level 2 s.h.
- 9:175 Advanced French Pronunciation 2 s.h.
- 9:25 French Pronunciation 2 s.h.

A minimum of four 100-level courses in literature (at least two of which must be above the 100 level), plus a 100-level course in a choice of literature, advanced language, or civilization, totaling 15 semester hours.

Civilization Track

Designed for students interested in French history, politics, and culture, and recommended for students wishing to combine studies in French with a major in another area, such as history, political science, pre-law, or journalism and mass communication, the civilization track requires 30 semester hours of credit in French, including:

- 9:105-106 Second-Year Composition and Conversation 8 s.h.
- 9:111 Third-Year Composition 3 s.h.
- 9:112 Third-Year Composition 3 s.h.

A minimum of four 100-level courses in civilization and three 100-level courses in literature, totaling 21 semester hours and including at least one course in literature above the 100 level.

Teaching Track

The teaching track requires 35 semester hours of credit in French, including:

- 9:105-106 Second-Year Composition and Conversation 8 s.h.
- 9:111-112 Third-Year Composition 6 s.h.
- 9:175 Advanced French Pronunciation 2 s.h.
- 9:26 French Conversation: Third Level 2 s.h.
- 9:20 French Conversation: Fourth Level 2 s.h.

A minimum of five 100-level courses—at least two in literature and two in civilization, totaling 15 semester hours and including at least two courses above the 100 level.

The student who plans to acquire a secondary teaching certificate must also complete the College of Education requirements for teacher certification.

Applied French Track

Designed for students with an interest in areas such as international business, commerce, or law, and others in which applied French would be an asset, the applied French program requires 30 semester hours in French, including:

- 9:105-106 Second-Year Composition and Conversation 8 s.h.
- 9:111-112 Third-Year Composition 6 s.h.
- 9:115 Business French 3 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:126 French Conversation: Fourth Level 2 s.h.
- 9:150 Commercial and Technical Translation 3 s.h.
- 9:157 Translation Project Two courses each in French civilization and literature 12 s.h.

Electives recommended as adjunct are courses in French stylics and textual analysis, another language, economics, political science, and/or business administration.

Minor

The requirements for a minor in French are 15 semester hours, at least 12 of which must be taken at The University of Iowa in courses numbered 9:105 and above. Credits numbered in the 140s, 150-152, and 158 do not count toward the minor in French.

Bachelor of Arts in Italian

Requirements for the major in Italian include:

- 19:111-112 Intermediate Italian 6 s.h.
- 19:111-112 Advanced Composition and Conversation 7 s.h.
- 19:106-107 Introduction to Italian Literature 6 s.h.
- 19:110-112 Dante and His Times 6 s.h.
- 19:101 Literature of the Nineteenth Century 3 s.h.

A course in twelfth-century literature 3 s.h.

Total 29 s.h.

Honors

The department participates in the College of Liberal Arts Honors Program. For an honors degree in French, the student must complete:

- 9:108 Honors Readings 3 s.h.
- 9:150 Honors Seminar 3 s.h.

An additional course in French literature, language, or civilization, numbered above 166 3 s.h.

Summer Program in France

The department is cosponsor of a summer program in France for students enrolled in the three Iowa Regents universities. Eligibility for the program requires a good basic knowledge of French (two years of college-level preparation is recommended), but does not require that the student be a French major.

Centered in Lyon, the program combines formal class work in language skills with an integrated course in the culture and civilization of France, including visits to points 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 on Institutional Cooperation (CIC) Summer French Program in Quebec at the Universite 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 Course d'ete pour non-francophones at the Universite Laval, the program is designed to offer qualified students the opportunity to increase their command of French, a French-speaking environment and to introduce them to the heritage and cultural traditions of a unique and vital region of North American culture.

Language House

The French and Italian department maintains close connections with the Maison Francaise in the Foreign Language House of South Quadrangle Residence Hall. Residents initiate cultural and educational programs with the participation of the faculty and other students, providing a unique opportunity to combine living with language learning.

Graduate Programs

Master of Arts in French without Thesis

The candidate must earn a minimum of 30 semester hours of graduate credit and pass a written and oral examination. The program must include 9:175 Advanced French Pronunciation, 9:209 Advanced Grammar and Composition in French, and at least four graduate-level (100- and Seminar) literature and language courses. With the permission of the department chair, the candidate may take one of the required 15 semester hours outside the department.
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 the candidate may earn up to 6 semester hours' credit for thesis work. The candidate must defend his 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 eight must be in education or related fields, and at least nine in graduate (200 level) courses in French literature.

The following courses also are suggested:
- 9.103 Topics in Applied French
- 9.154 Textual Analysis
- 9.206 Advanced Grammar and Lexicology
- 9.210 Comparative Syntax
- 9.110-112 French Civilization
- 9.150 Methods: Foreign Language
- 9.151 Language: Laboratory Equipment Procedures
- 9.125 Contemporary France
- 9.155 Advanced French Pros没有人

Candidates must pass a final written and oral examination.

Doctor of Philosophy
Requirements for the Ph.D. degree in French require a minimum of three years of graduate study, of which at least one year must be spent in residence at the University. The passing of a comprehensive examination, and the successful oral defense of a dissertation.

Specific requirements include 9.251 Introduction to Old French Grammar, and four semesters of college study or equivalent proficiency in a foreign language other than French. The candidate also must complete three graduate courses for a minimum total of 6 semester hours of credit in a related field, such as another literature, history, or philosophy, and must earn at least 6 semester hours of credit in 9.277 Thesis.

Students working toward the doctorate are required to spend at least one year teaching as graduate assistants in the department.

Admission
To be considered for admission to the M.A. program in French, the applicant must have completed the equivalent of the University of Iowa undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

The M.A. in French is prerequisite to admission to the Ph.D. program in French.

Successful completion of the M.A. program, however, does not necessarily qualify a student for doctoral studies. For students earning the M.A. at the University of Iowa, the M.A. comprehensive examination committee will make a recommendation concerning admission to the Ph.D. program. Students applying for doctoral candidacy outside of the M.A. earned at another institution are placed on conditional status when admitted. This status is reviewed after one semester of residence.

In addition to the Graduate Record Examination (GRE) Aptitude Test scores required by the Graduate College, the department requires that all applicants for admission to graduate programs in French submit scores from the GRE Advanced Test in French.

Appointments
Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students. (See the "Graduate College" section of theCatalog). The department may name one Teaching/Research Fellow annually. Inquiries should be addressed to the departmental office.

Exchange assistantship agreements with the French Ministry of Education, the Ministry of Posts, and the University of Picardy provide one year of residence in France for a limited number of graduate students.

French Courses
A detailed description of courses offered each semester is available in the department office. All courses are given in French unless otherwise indicated. Courses numbered 110-149 are intended primarily for advanced undergraduates, a graduate student should consult with his or her advisor before registering for these courses.

Courses numbered 140-149 are given in English or French toward the major requirements in French, but may be taken as electives; consultation with the advisor is recommended prior to registration. Students who have had significant experience with French through study or foreign residence are required to take placement tests prior to the opening of each term.

A student may not repeat, either for credit or grade points, a course that is a prerequisite to, or whose equivalent is a prerequisite to, a higher-level course that the student has already completed.

For Undergraduates and Graduates
- 9.103 Topics in Applied French
- 9.154 Textual Analysis
- 9.206 Advanced Grammar and Lexicology
- 9.210 Comparative Syntax
- 9.110-112 French Civilization
- 9.150 Methods: Foreign Language
- 9.151 Language: Laboratory Equipment Procedures
- 9.125 Contemporary France
- 9.155 Advanced French Pros

Doctor of Philosophy
Requirements for the Ph.D. degree in French require a minimum of three years of graduate study, of which at least one year must be spent in residence at the University. The passing of a comprehensive examination, and the successful oral defense of a dissertation.

Specific requirements include 9.251 Introduction to Old French Grammar, and four semesters of college study or equivalent proficiency in a foreign language other than French. The candidate also must complete three graduate courses for a minimum total of 6 semester hours of credit in a related field, such as another literature, history, or philosophy, and must earn at least 6 semester hours of credit in 9.277 Thesis.

Students working toward the doctorate are required to spend at least one year teaching as graduate assistants in the department.

Admission
To be considered for admission to the M.A. program in French, the applicant must have completed the equivalent of the University of Iowa undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

The M.A. in French is prerequisite to admission to the Ph.D. program in French.

Successful completion of the M.A. program, however, does not necessarily qualify a student for doctoral studies. For students earning the M.A. at the University of Iowa, the M.A. comprehensive examination committee will make a recommendation concerning admission to the Ph.D. program. Students applying for doctoral candidacy outside of the M.A. earned at another institution are placed on conditional status when admitted. This status is reviewed after one semester of residence.

In addition to the Graduate Record Examination (GRE) Aptitude Test scores required by the Graduate College, the department requires that all applicants for admission to graduate programs in French submit scores from the GRE Advanced Test in French.

Appointments
Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students. (See the "Graduate College" section of theCatalog). The department may name one Teaching/Research Fellow annually. Inquiries should be addressed to the departmental office.

Exchange assistantship agreements with the French Ministry of Education, the Ministry of Posts, and the University of Picardy provide one year of residence in France for a limited number of graduate students.

French Courses
A detailed description of courses offered each semester is available in the department office. All courses are given in French unless otherwise indicated. Courses numbered 110-149 are intended primarily for advanced undergraduates, a graduate student should consult with his or her advisor before registering for these courses.

Courses numbered 140-149 are given in English or French toward the major requirements in French, but may be taken as electives; consultation with the advisor is recommended prior to registration. Students who have had significant experience with French through study or foreign residence are required to take placement tests prior to the opening of each term.

A student may not repeat, either for credit or grade points, a course that is a prerequisite to, or whose equivalent is a prerequisite to, a higher-level course that the student has already completed.

For Undergraduates and Graduates
- 9.103 Topics in Applied French
- 9.154 Textual Analysis
- 9.206 Advanced Grammar and Lexicology
- 9.210 Comparative Syntax
- 9.110-112 French Civilization
- 9.150 Methods: Foreign Language
- 9.151 Language: Laboratory Equipment Procedures
- 9.125 Contemporary France
- 9.155 Advanced French Pros

Doctor of Philosophy
Requirements for the Ph.D. degree in French require a minimum of three years of graduate study, of which at least one year must be spent in residence at the University. The passing of a comprehensive examination, and the successful oral defense of a dissertation.

Specific requirements include 9.251 Introduction to Old French Grammar, and four semesters of college study or equivalent proficiency in a foreign language other than French. The candidate also must complete three graduate courses for a minimum total of 6 semester hours of credit in a related field, such as another literature, history, or philosophy, and must earn at least 6 semester hours of credit in 9.277 Thesis.

Students working toward the doctorate are required to spend at least one year teaching as graduate assistants in the department.

Admission
To be considered for admission to the M.A. program in French, the applicant must have completed the equivalent of the University of Iowa undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

The M.A. in French is prerequisite to admission to the Ph.D. program in French.
Genetics

Chair: Gary Genes
Program Coordinator: Roger E. Gardner (Biochemistry)

Theresa Connolly (Biochemistry), Irving Crawford (Microbiology), E. M. Davis (Biochemistry), John Devos (Biochemistry), Robert Fish (Microbiology), Joseph Fredrickson (Biochemistry), Gary Genes (Biochemistry), James Lawton (Pediatrics), Joseph K. Lam (Biochemistry), Victor Lacaze (Psychology), Robert McMillan (Biophysics), Donald W. Mooney (Biochemistry), David Stotz (Biochemistry), Ithell F. Sobel (Microbiology), Mark Strain (Molecular Biology), G. Marcus Stevens (Microbiology), George Winter (Pathology)

Professor Emeritus: John D. Zeller (Pediatrics)

Assistant Professors: Robert A. Anderson (Internal Medicine), James Banting (Pediatrics), Jeff Murphy (Pediatrics), Brian Van Noss (Biochemistry), Nils W. Van (Chemistry), Anthony West (Biochemistry)

Degree offered: Ph.D.

Graduate Program

The interdepartmental Ph.D. program in genetics is designed to promote collaborative investigations and intellectual interactions among students and faculty participants affiliated with several different departments.

Students enrolling in the program are encouraged to obtain a broad background in genetics, ranging from molecular to population genetics. Within this context, however, course requirements are flexible enough to permit students to tailor their formal course work to fit their individual needs.

All students enrolled in the program are required to take 99.130 Metabolism, 99.171 Molecular Genetics, and 211.251 Genetics Seminar (same as 211.252, 41.215, 99.221). In addition, they are required to earn at least 32 semester hours of credit in molecular and microbial genetics, cell and developmental genetics, and quantitative and population genetics.

Even more important than formal course work is the opportunity to do significant research in genetics. Students are encouraged to begin their own research as quickly as possible. Research interests of the participating faculty include virtually all areas of genetics, ranging from bacteriology to human medical genetics. In each area of genetics there is a group of faculty members with closely related interests. The University is also strong in several related disciplines, including microbial physiology, enzymology, virology, plant biocchemistry, and developmental, cell, and population biology, all of which contribute significantly to the overall training program.

In addition to completing research and course work, students also must pass a comprehensive examination, usually within their first two years in the program.

Admission

The prospective doctoral student in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, introductory physics, and mathematics, and a strong commitment to research and teaching in genetics. A student with deficiencies in a particular area may be accepted provisionally for a period of up to the first year of graduate study.

Admission to the program is based on assessment of the applicant's undergraduate academic record, including the Graduate Record Examination (GRE) Aptitude Test (verbal, quantitative, and analytical) and letters of recommendation. Requirements for admission are not rigid. Although almost all students currently working toward the Ph.D. in genetics at The University of Iowa have undergraduate grade-point averages higher than 3.25 and GRE totals (verbal plus quantitative) exceeding 1250, students with lower grade-point averages or GRE scores may be admitted, depending on other indicators of academic potential.

The program accepts applications for admission at any time, but students generally begin graduate work during the fall semester.

Financial Aid

All graduate students receive a financial stipend that is in the range of $8,250 (plus tuition) per year or higher depending on the source of the support. Most of the financial support comes from a National Institutes of Health predoctoral training grant, research fellowships, teaching assistantships, scholarships, individual research grants, or other departmental or college funds. All trainees are encouraged to do some teaching as part of their development as scientists and teachers.

Medical Scientist Training Program

Students may combine study toward an M.D. and a Ph.D. in genetics. Further information about this program can be obtained from the director of the Medical Scientist Training Program in the College of Medicine.

Departmental Ph.D. Programs

The departments of Biochemistry, Biology, Botany, and Microbiology offer degree programs in which students may specialize in a particular aspect of genetics. See the departmental description elsewhere in the Catalog for information about these programs.

Courses

The following genetics courses are available to graduate students. Not all courses are offered every year.

99.150 Biochemistry of International Microorganisms 3 s.h.
99.223 Gene Expression 1-2 s.h.
211.144 Cytogenetics 3 s.h.
211.160 Genetics and Genomics of Cell Organelles 3 s.h.
61.179 Mitochondrial Genetics 3 s.h.
61.175 Microbial Genetics 3 s.h.
61.179 Comparative Microbial Genetics 3 s.h.
61.270 Topic in Molecular Biology 3 s.h.
37.142 Populations and Evolutionary Genetics 3 s.h.
37.163 Behavioral Genetics 3 s.h.
37.165 Quantitative Genetics 3 s.h.
37.167 Ecology and Evolutionary Biology 3 s.h.
37.171 Molecular Genetics 4 s.h.
37.172 Molecular Genetics 4 s.h.
37.173 Topics in Evolutionary Genetics 2 s.h.
37.176 Topics in Ecology and Evolutionary Biology 2 s.h.
37.215 Genetics Seminar 0-2 s.h.

**Geography**

Chair: David B. Reynolds

Professor: John W. Cooper, James L. Lathrop, and David B. Reynolds

Associate professor: John W. Cooper, and David B. Reynolds

Assistant professor: Joseph M. Collins

Visiting assistant professor: John W. Cooper

Adjunct faculty: Susan Cowan, Mary F.

Kleger, Joan Lawrence, and Thomas O. Newton.

Degrees offered: B.A., B.S., M.A., M.P.A.

Geography seeks to explain spatial organization and areal differentiation through detailed studies of significant patterns and processes. The discipline is concerned with "place" or "environment" and ongoing forces that promote change within and between human and physical systems. Geography is a composite of art, requiring a broad base of knowledge from many related disciplines. It is akin to an analytical science that seeks explanations of specific research questions from a diverse geographic perspective.

Students who elect courses in geography find that developing insights and methods-of-inquiry that are particularly applicable to understanding many of the complex problems confronting societies. For instance, the distribution and consumption of natural resources, air and water pollution, the growth and development of urban areas, increasing populations, transportation problems, spatial inequalities, the function of services, and conflicts between nations are some of the issues which students deal with during geographic training.

Studies in geography also provide students with concepts and methods for organizing such social units as urban areas, marketing regions, school districts, health service areas, drainage basins, and other areas of environmental concern. Thus, geographers can make substantial contributions toward understanding the behavior of individuals and of societies, and their relations with the environment.

Career opportunities for majors in geography exist in many branches of government and in business. There is a demand for persons capable of dealing with resource management, regional development, city planning, data analysis, and other problems related to the distribution and spatial interrelations of physical, economic, social, and political phenomena.

Courses in geography are commonly required of students preparing to teach at the elementary and secondary school levels, of students who want to work in urban and regional planning, and as a background for many related professions, including law, health care, environmental or transportation engineering, and business administration.

**Undergraduate Program**

The geography faculty has developed an undergraduate instructional program that provides educational opportunities for a variety of students, for the major interested in elective courses as they relate to a liberal education; for students interested in selecting a cluster of courses in conjunction with another discipline or for the B.G.S. degree; and for students interested in acquiring a major or minor in geography. The department also joins in significant interdepartmental programs involving global, urban, and environmental components.

**Programs for the Undergraduate Major**

Students majoring in geography may choose from alternative programs depending on their interests. The substantive strengths of the department fall into three areas: environmental studies, urban and regional studies, and international development studies. Students may concentrate in these areas, or they may develop an individualized program within the curriculum offered by the department.

Students planning advanced training or seeking careers in geography should elect the Bachelor of Science (B.S.) degree. Those who wish to pursue a liberal arts objective are advised to elect the Bachelor of Arts (B.A.) degree.

**Requirements**

All geography majors must complete a minimum of 28 semester hours of geography courses, work at least 15 of which must be at the 200 level. Many students find that they need more than the minimum requirements to master a specific subfield.

All geography majors must complete:

- 44100 Spatial Organization
- 44150 Undergraduate Seminar for Geography Majors

and one of the following courses in statistics:

- 22501 Biostatistics
- 22502 Introduction to Statistical Methods
- 22517 Applied Statistical Methods and Computations

Bachelor of Science students must fulfill a mathematics requirement of two courses, preferably to the level of calculus. Students should select one course from section A and one course from section B, or two courses from section B:

**Section A**

- 22101 Calculus for the Biological Sciences
- 22119 Elementary Functions

**Section B**

- 22125 Calculus I
- 22126 Calculus II
- 22136 Engineering Calculus I
- 22136 Engineering Calculus II

Bachelor of Science students also must take a computer programming course from the following:

- COMP 11 Introduction to Programming with FORTRAN
- COMP 11 Introduction to Programming with Pascal

With the consent of the geography faculty, equivalent courses that have objectives similar to these may be accepted in fulfillment of the statistical, mathematical, and computer science requirements.

**Recommendations**

Students majoring in geography are advised to:

- Take both the introductory level courses 44100 Introduction to Human Geography and 44130 Introduction to Physical Geography during their freshman or sophomore years.
- Take 44100 Spatial Organization followed by 44150 Undergraduate Seminar for Geography Majors during their senior year.
- Take the statistical, mathematical, and computer programming requirements as early as possible because many advanced level courses assume prior knowledge of these subjects.

It is strongly recommended that students take 22125 Calculus I or its equivalent in fulfillment of the mathematics requirement. Students equipped with these skills will have greater flexibility in further geography and computer science opportunities.

**Courses for the Nonmajor**

Students in the College of Liberal Arts or other schools and colleges of the University may find geography courses meaningful to their own program of study. The beginning-level courses 44100 Introduction to Human Geography, 4411 Introduction to Social Geography, 4419 Contemporary Environmental Issues, and 4430 Introduction to Economic Geography are available for general education credit in social science, and 4433 Introduction to Economic Geography is available for general education credit in natural science. These courses serve as part of a liberal education.
Other courses also may be attractive as individual electives. These include 4415 Introduction to Political Geography, 4435 World Cities, 44126 Water in the Biosphere, 44128 Drainage Basin: Form and Process, 44137 Third World Development Support, 44110 The Changing World, and 44119 Energy in Contemporary Society.

Students in related disciplines may take groups of courses leading in a minor in geography. Bachelor of General Studies students also may take a group of geography courses as part of their degree. The geography courses listed below, under the different programs for the major in geography, will serve as a guide to course selection. Additional information about a minor is available in the department office.

**Environmental Studies**

The undergraduate program in environmental studies is designed for students who have career expectations or personal interest in resource management or environmental protection, or who are interested in physical geography per se. The program provides a knowledge of physical processes in landform development, hydrologic conditions, hydrology, soil development, and biotic communities. It stresses the interrelationships among these processes and helps the student acquire knowledge necessary to assess the impact of human activity upon the environment. Training in field observation, quantitative analysis, computer methods, and cartographic representation should be included in this concentration. The program also provides a sound background for graduate or professional level studies. This undergraduate program has been designed as an introduction to the graduate level water resources program of the Department of Geography.

Students concentrating in environmental studies should take 4415 Introduction to Physical Geography and 4419 Contemporary Environmental Issues at the beginning of their program. Students are advised to consult the additional geography courses from among the following:

4411 Introduction to Human Geography
4418 Foundations to Economic Geography
44101 Weather and Climate
44107 Natural Hazards
44122 Environmental Conservation in the United States
44125 Geography of Natural Resources
44126 Environmental Impact Analysis
44126 Water in the Biosphere
44128 Drainage Basin: Form and Process
44125 Water Resources Management
44175 Locational Conflict
44193 Rural Development
44191 Energy in Contemporary Society

Also strongly recommended:
44109 Computer Methods in Geographical Analysis
44113 Geographic Information Systems

Under the direction of an advisor, students should select at least 12 semester hours of courses from one of the following clusters:

**Physical Systems**

105 Introduction to Geology
1160 Introduction to Oceanography
11210 Introduction to Remote Sensing
166 Hydrogeology and Groundwater Quality
211 Geomorphology
2179 Engineering Geology

**Environmental Science**

112 Ecology and Evolution
205 Chemistry and Physics of the Environment
212 Microbiology and Society
255 Plants and Human Affairs
2701 Plant Diversity
2711 Plant Ecology
2716 Field Ecology
2719 Plant-Animal Interactions
2722 Population and Community Ecology
370 Topics in Ecology
3703 Quantitative Field Ecology
3704 Quantitative Methods in Ecology

**Environmental Management**

621 Principles of Microeconomics
622 Principles of Macroeconomics
6230 Macroeconomics
6231 Environmental Economics
62161 Individual Behavior in Organizations
62163 Design and Management of Organizations
10210 Introduction to Planning and Policy Development
10214 Introduction to Environmental Planning
5204 Theories of Environmental Policy and Assessment

**Urban and Regional Studies**

The undergraduate program in urban and regional studies is designed for students who are preparing for positions in government and private business. Courses in this area also are designed to provide a suitable background for graduate programs in geography or professional programs such as urban and regional planning, business administration, applied policy analysis, or regional science. The courses cover location theories and their applications, and the problems of solving sites for development potential, finding the best locations for public and private facilities, developing plans for regional and community development, evaluating alternate plans for improving transport services in a region, and forecasting the populations of small areas. Methods for solving these applied problems are based on a thorough understanding of the processes of urban and regional development, the roles of individuals and institutions in effecting change, and the processes through which policy decisions are reached. Required skills are developed in quantitative analysis, cartography, development and management of geographical information systems, and computer methods. Opportunities for experience in working with real problems are included.

Students concentrating in urban and regional studies are advised to select at least 21 semester hours of courses from the following:

4411 Introduction to Human Geography
4415 Introduction to Physical Geography
4411 Introduction to Social Geography
4415 Introduction to Political Geography
4410 Introduction to Economic Geography
4435 World Cities
44120 Environmental Impact Analysis
44130 Location of Services
44131 Medical Geography
44132 Industrial Location
44133 Introduction to Transportation
44134 Methods of Transportation Analysis
44135 Urban Geography
44137 Economic Theory of Location
44139 Urban Problem
44132 Spatial Organization and Political Economy in the Third World
44130 Geography of the Newly Industrializing Countries
44166 Contemporary Europe: Interaction and Change
44157 Patterns of Urbanization and Development in Latin America
44170 Political Economy of Space
44175 Locational Conflict

Also strongly recommended:
44157 Maps and Mapping
44160 Methods in Geographical Analysis
44113 Geographic Information Systems

Under the direction of a graduate advisor, students should select courses in related disciplines from the following:

11319 Urban Anthropology
11387 Afro-American History 1914-Present
32113 Local and Regional Politics
10210 Introduction to Planning and Policy Development
10215 Regional Development Policy and Planning
44133 Health Economics
44135 Regional and Urban Economics
44137 Problems in Urban Economics
44130 Marketing Research

**International Development Studies**

The concentration in international development studies is designed for students interested in the processes of economic, social, and political development, particularly as they affect the countries of the Third World. This concentration gives students a better understanding of regional and national development in international and cross-cultural perspective. Students who are interested in the problems of developing nations and who wish to examine competing theories of development intended to explain international and
provided for all graduate students to gain practical M.A. teaching experience through service as departmental teaching assistants or graduate instructors.

Master of Arts

The department offers five M.A. subprograms: locational analysis, political geography, regional development, transportation systems analysis, and water resources. These specialties are designed for students seeking positions in community planning, health planning, development planning in the Third World, water resources management, and transportation, as well as for those who intend to pursue the Ph.D.

Each subprogram cuts across some of the more traditional breakdowns of the discipline and builds on the research specialties of the faculty. For example, topics of interest in urban geography are included in three subprograms: locational analysis, political geography, and regional development, while the traditional concerns of economic geography are included in locational analysis and regional development. The more quantitative perspectives of regional science are included in locational analysis and transportation systems analysis. The water resources subprogram builds on a strong foundation in physical geography and environmental science.

Although M.A. students pursue a program of study within one of the subprograms, they must also gain a basic proficiency in another. The M.A. emphasizes the acquisition of analytical skills and their application in research. Courses that provide necessary training in oral and written communication, computer programming and graphics, statistics, mathematics, and research methodology therefore are integral to the M.A. program. Students preparing for the M.A. subprogram may take an additional elective course that enables them to secure a certificate in addition to their M.S. degree.

General Requirements

The M.A. degree requires a minimum of 30 semester hours of graduate work, of which 15 semester hours must be in 200-level courses or above. In addition to fulfilling the course requirements in one of the department's five subprograms (see below), students must complete:

- Complete at least one course in another subprogram from the following introductory graduate courses: 44:125, 44:126, 44:134, 44:177, or 44:294;
- Enroll in the department's general epistemology course (44:350 Research Seminar: Staff) during each semester in residence;
- Satisfy the department's B.S. degree requirements or their equivalents in

Graduate Programs

The goals of the department's graduate programs are to prepare students to carry on creative and productive research in selected areas of geography involving the use and further elaboration of theory and to prepare students for positions in research, teaching, or some area of applied geography. Success in achieving these goals has been demonstrated by the strong demand for University of Iowa graduates to fill positions on college and university faculties, in private research organizations, and in business and government.

The department offers specialized instruction in the teaching of geography at the college level for those pursuing academic careers. Opportunities are
mathematics, statistics, and computer programming.

According to 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. degree can be earned with or without thesis. A maximum of 6 semester hours of credit may be earned for thesis work.

Student selecting the M.A. without thesis must pass a written examination and, in most subprograms, an oral examination. The student 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

Locational Analysis
44.134 Methods of Transportation Analysis
44.137 Economic Theory of Location
66.265 Microeconomics I
or
66.266 Microeconomics II
66.277 Urban Economics and Urban Spatial Structure
66.285 Methods of Regional Analysis: Regional Science
66.285 Advanced Location Theory
66.285 Research Seminar: Location Theory

Political Geography
44.175 Locational Conflict
66.285 Microeconomics I
44.216 Philosophy and Epistemology in Geography
44.270 Jurisdictional Organization/Public Service Provision
102.204 Collective Decision Making
102.212 Social Theory, Social Movements, and Public Policy
44.315 Research Seminar: Political Geography

Regional Development
44.227 Economic Geography of Regional Development
44.279 Industrial Location and Regional Development in Latin America
44.279 Agrarian Change and Rural Development in the Third World
44.292 Geographic Perspectives on Development
44.304 Research Seminar: Regional Development

Highly recommended courses:
44.285 Methods of Regional Analysis: Science
44.285 Regional Development Theory and Method
30.350 Political Economy and Public Policy in Developing Countries

Transportation Systems Analysis
*44.102 Statistical Methods in Econometrics
*44.150 Methods of Quantitative Economics
66.303 Microeconomics I
or
66.265 Microeconomics II

44.134 Methods of Transportation Analysis
44.216 Travel Demand Modeling
102.260 Transportation Policy and Planning
102.251 Problems in Transportation and Land Use
or
53.262 Urban Transportation Planning
*Course satisfies the M.A. and Ph.D. quantitative methods requirements.

Water Resources
44.128 Drainage Basin: Form and Process
44.126 Water in the Biosphere
44.125 Environmental Impact Analysis
Three of the following:
44.210 Flood Studies: Hydrology and Morphology
44.225 Water Resources System Analysis
44.225 Fluvial Systems in Landscape Ecology
44.227 Water Quality Control Systems
44.225 Water Resources Management
44.315 Research Seminar: Water Resources

Students are expected to have an undergraduate background relevant to pursuing graduate work in one of the department’s subprograms. A B.A. or B.S. in Geography is not a prerequisite for entry into the program. 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 is perhaps more important than the particular disciplinary orientation of the student’s baccalaureate degree. Depending on the strength and suitability of their prior training, however, students may be required to take courses that are prerequisites for courses in their elected subprograms. Credit received for such courses cannot be applied toward the 30 semester hours required for the M.A. Each of the M.A. subprograms is designed to be completed in four semesters. This means that the student typically will accumulate 40-45 semester hours of graduate credit in completing the M.A. Students are advised to use these additional hours to elect graduate courses in other subprograms in geography and in other University departments and programs, thereby tailoring their programs of study to their individual interests.

Doctor of Philosophy

The Doctor of Philosophy program is designed to prepare students for positions in college and university teaching and in advanced research. It provides programs of study leading to broad knowledge of a field of geography and its literature and special expertise in a specific subfield. The former usually represents the general area in which the Ph.D. holder seeks employment, whereas the latter represents his or her area of most active research involvement. The Ph.D. is fundamentally a research degree and as such is constrained by the expertise of the faculty. At the Ph.D. level, the department is best known for its rigorous analytical orientation, particularly in the areas of locational analysis, spatial behavior, transportation, Third World regional development, urban political geography, and water resources management.

The Ph.D. is a four- to five-year, post-baccalaureate program, the first two years of which are advisory 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 (3 semester hours) in a field that is at a level above that required for the B.S. degree and chosen from a list of courses approved by the faculty. Students in the Ph.D. program are advised to fulfill both the M.A. and Ph.D. quantitative mathematics requirements—a total of 6 semester hours—during their first year in residence.

Complete one additional research seminar under the direction of a faculty member who is not directing his or her research seminar satisfying the student’s M.A. requirement.

Register for the Ph.D. dissertation course (44.300 Research Seminar: Staff) each semester that the student is in residence.

Students can formally be admitted to candidacy for the Ph.D., they must submit an original research paper to the faculty for its approval. Students completing the M.A. with thesis can submit the M.A. thesis to fulfill this requirement. Students entering the program with an A.M. can apply their thesis on certain topics to the research paper requirements described above. Students who initially enter the M.A. program with a terminal M.A. as their degree objective and who complete that program can enter the Ph.D. program by fulfilling the research paper requirement.

By the end of the M.A. portion of the program (typically the fourth or fifth year for the student entering the program directly from the B.S. or B.A.) the student must fulfill...
Facilities

The department houses a laboratory for computer cartography and spatial analysis equipped with IBM PCs, Gras-STAR and Graf-Pen digitizers, an HP 7475 6-page plotter, and two remote printers. The PCs and other terminals in the department are linked to the University’s SYTEK broadband communication network, which provides high-speed access to graphics, data management, and analysis software on University IBM, PRIME, and VAX computer systems. Analytical capabilities in the computer cartography laboratory are expected to be enhanced by the acquisition of DRAEXA microcomputer-based software for image processing and geographic information handling. Students also have access to a University computing cluster that contains IBM PCs, terminals, several printers, and a plotter and is located on the main floor of the departmental offices. Other facilities in the department include a darkroom and a small laboratory.

The map collection in the Geography Library contains more than 115,500 maps, a total of 3,600 atlases and reference books, and about 100,000 aerial photographs, primarily of Iowa. The library is a Depository for maps of the U.S. Army Topographic Command, formerly the Army Map Service. The Geology Library contains approximately 7,000 maps, including both geological maps and U.S. Geological Survey topographic maps. The Department of Geography has its own collection of computer geographic maps, maps of large urban centers, and aerial photographs for use by students in laboratory exercises.

Courses

Most courses open to undergraduate students may be taken in any order or simultaneously. All courses below the 100 level are open to freshmen: 444, 446, 449, and 463 satisfy the General Education Requirement in social sciences; and 464 satisfies the General Education Requirement in natural science.
The program puts greater stress on the basic aspects of geology than on the engineering or agricultural phases of the discipline. The department specializes in relating scientific thought to the study of the earth. Its resources include a major paleontology faculty (vertebrate, invertebrate, palynology, a terminal link to the Wing Computing Center, the Iowa Geological Survey, located in the same building as the department), and research equipment for facies such as x-ray, photogrammetry (igneous, sedimentary, and economic), remote sensing, and exploration geophysics.

Geology majors receive at least an academic year’s work in allied scientific areas—physics, chemistry, biology, and mathematics—enough to complete a course in each major area of geology.

Each year more than 900 students enroll in 12.23 Earth History and Resources and 12.24 Introduction to Environmental Geology, a team taught, laboratory-lecture course designed to fulfill the College of Liberal Arts General Education Requirement for natural science studies. For nonmajors, the department offers a lecture sequence featuring a general survey of geology and several advanced courses with low prerequisites—paleontology, geology of Iowa, energy in contemporary society, a planet in crisis, remote sensing, geomorphology, and oceanography.

Undergraduate Programs

Students majoring in geology must meet the general requirements of the College of Liberal Arts. It is recommended that they satisfy their foreign language requirements in French, German, or Russian, and the social sciences requirement with Approved courses in economics, geography, and/or anthropology.

Bachelor of Science

The Bachelor of Science professional programs in geology are designed primarily as preparation for graduate study and for employment in industry. Required courses in this program:

12.25 Introduction to Geology 4 s.h.
12.26 Evolution of the Earth 4 s.h.
12.41 Mineralogy 4 s.h.
12.52 Elementary Petrology 4 s.h.
12.52 Secondary Geology 4 s.h.
12.52 Geology of Rocks 4 s.h.
12.123 Soils Field Course 2 s.h.
12.123 Principles of Palaeontology 3 s.h.
At least two elective courses 4 s.h.

Total At least 38 s.h.

*The student may substitute 12.23 Earth History and Resources for 12.25 Introduction to Geology, but 12.5 is preferred.

The geology major requires at least 10 semester hours of college mathematics, including 22.52 Calculus II or 22.53 Engineering Calculus II. Computer science or statistics courses may be counted toward the 10-semester-hour requirement. Additional mathematics courses are strongly recommended.

Eight semester hours of physics, 8 semester hours of chemistry, and a course with a lab in biological science are also required.

Bachelor of Arts

The Bachelor of Arts program is designed to provide a general background in geology—with a broader choice of electives than that for the B.S.-program students who are not planning to become professional geologists. With appropriate course work in education, the B.A. program provides a base for high school or community college teaching. A general background in geology and allied fields also is applicable in areas such as law conservation and environmental problems. Course requirements for the B.A. in geology:

12.25 Introduction to Geology 4 s.h.
12.26 Evolution of the Earth 4 s.h.
12.41 Mineralogy 4 s.h.
12.52 Elementary Petrology 4 s.h.
12.123 Principles of Paleontology 3 s.h.
12.121 Field Trip (two sections) 4 s.h.
Geology electives 12 s.h.

Total 35 s.h.

*The student may substitute 12.23 Earth History and Resources and 12.24 Introduction to Environmental Geology for 12.25 Introduction to Geology, but 12.5 is preferred for the B.A.

The B.A. in geology requires at least 10 semester hours of college-level mathematics, which may include computer science or statistics.

Eight semester hours of chemistry are also required, and courses in other sciences and social sciences appropriate to the student’s objectives are recommended.

Joint Programs

Joint programs can be arranged, typically with chemistry, physics, biology, and anthropology.

Original Research

A junior or senior who is ready to pursue original research credit in geology may assist a faculty member or graduate student with current research project, or may initiate a small-scale project involving a combination of field, laboratory, and library investigation. Independent study is encouraged. Undergraduate class have produced term reports that subsequently were published.

Honor's

A degree "with honors" in geology is offered. Students in the honors program may elect a senior thesis.

Graduate Programs

Students planning to take graduate work in geology should have completed geology and supporting course requirements 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.

All beginning graduate students in geology must take 12.197 Geologic Orientation.

All graduate students in geology must perform teaching, research, or related appropriate services as part of the degree program.

Prospective graduate students in geology should consult the "Rules and Regulations" in the "Graduate College" section of the Catalog for general admission and graduate study requirements.

Master of Science

The M.S. degree programs are designed to complete the student's broad, fundamental background in geology and the supporting sciences. They prepare the student for a professional career in geology, or for more advanced and specialized studies—although in certain situations and with faculty approval the student may pursue an already specialized program at the master's level.

Entering graduate students are assigned to a graduate adviser. Before the end of the second semester, the student has selected a research area and related these. The departmental adviser approves the thesis adviser and two additional faculty members, who form the student's advisory committee. The student is responsible for getting the committee's approval for a suitable program of course work and for satisfactory development of research plans as outlined in the proposal that is submitted for departmental approval.

The degree requires at least 30 semester hours of credit in graduate-level course work, including not more than 8 semester hours of thesis and research credit, and at least 6 semester hours in residence at The University of Iowa.

Master's degree candidates complete at least one half of the Ph.D. language and tool requirements as part of the master's program. Course work taken to satisfy these requirements does not count toward the dissertation-hour requirement for the degree.

To qualify for admission to the final master's examination, the candidate must have at least a 3.0 grade-point average on graduate courses that he or she is taking toward the 30 semester hours minimum requirement for the degree. Additionally,
the grade-point average on all graduate geology courses should be at least 3.0. Not more than 8 semester hours of thesis and research may be counted toward the 28-semester-hour minimum required for the degree program.

Master of Science with Thesis

Students are encouraged to select thesis topics involving a variety of geological subdisciplines and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination.

Master of Science without Thesis

The department encourages graduate students to pursue the 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 activity.

The students should receive prior faculty permission to apply the experience toward the degree.

Students must submit a written report on the activity, describing the geologic principles involved and its value and broader applications and implications. No college credit is granted.

The M.S. degree without thesis requires at least 38 semester hours of graduate coursework, of which at least 8 semester hours must be earned in other departments of the University.

The faculty also may require that students submit a formal geologic report dealing with an appropriate subject or project. Credit may be granted for this report.

The following are the minimum requirements for the M.S. degree without thesis.

- 18 semester hours of graduate coursework
- 6 semester hours of research work

Structural analysis
Remote sensing
Geophysics
Exploration geophysics
Solid-earth geophysics
Rock properties
Stratigraphy
Physical stratigraphy
Biostratigraphy
Depositional environments
Sedimentary petrology
Sedimentation
Sandstone and carbonate petrology
Physical stratigraphy
Paleocene studies
Paleozoic studies
Vertebrate paleontology
Quaternary paleontology
Paleontology
Paleoentology
Paleoecology
Eustatigraphy
General geomorphology
Glacials and Pleistocene
Remote sensing
Environmental geology
Hydrogeology
Remote sensing
Engineering geology
Other minor subjects
Botany
Ecology
Chemistry
Physics
Materials engineering
Geography

Doctor of Philosophy

The Ph.D. degree in geology requires at least 72 semester hours of graduate coursework, including at least two full-time semesters in residence beyond the last 24 semester hours of graduate study.

Departmental language and tool requirements for the Ph.D. degree may be met either by achieving competence in two languages or in one language and one tool, or by achieving proficiency in one language. Competence is normally achieved by satisfactory completion of a one-year sequence of appropriate courses.
proficiency in the language for use in business and government. It is especially useful when combined with a business-oriented curriculum.

Each track normally requires 24 semester hours of course work in the department, beyond the basic program. The following course sequences, or their equivalents, are required for students who begin a major in German with no previous experience with the German language.

**Basic Program**
- 13.12 Elementary German I 4 s.h.
- 13.12 Elementary German II 4 s.h.
- 13.21 Intermediate German I 3 s.h.
- 13.22 Intermediate German II 3 s.h.

The basic program may also be satisfied by various combinations of courses from the following: 13.13, 13.14, 13.25, 13.26, and 13.27. See the German department undergraduate advisor for details.

**Humanities Track**
**Third Year**
- 13.101 Introduction to Modern German Literature I 3 s.h.
- 13.102 Introduction to Modern German Literature II 3 s.h.
- 13.103 Composition and Conversations I 3 s.h.
- 13.104 Composition and Conversations II 3 s.h.

**Fourth Year**
- 13.105 German Cultural History 3 s.h.
- 13.111 Survey of German Literature 3 s.h.
- 13.112 Survey of German Literature 3 s.h.
- 13.116 Advanced Composition and Conversations 3 s.h.

**Applied German Track**
**Third Year**
- 13.203 Composition and Conversations I 3 s.h.
- 13.204 Composition and Conversations II 3 s.h.
- 13.206 Principles and Techniques of Translation 3 s.h.
- 13.207 Translation: Text and Culture 2.4 s.h.
- 13.114 Business German or 3 s.h.
- 13.115 Contemporary German Civilization 3 s.h.

**Fourth Year**
- 13.116 Advanced Composition and Conversations 3 s.h.
- 13.114 Business German or 3 s.h.
- 13.115 Contemporary German Civilization 3 s.h.

Graduate students are eligible to apply. All students are expected to speak only German while participating in the program. Program grants are available for qualified applicants.

For further information, write to the Department of German.

**Graduate Programs**

**Master of Arts (Thesis)**
Graduate students of German who demonstrate an interest in and potential for productive scholarship and who plan to continue the doctoral study should select the master's degree program with thesis. The master's program requires a minimum of 30 semester hours, or equivalent, of graduate-level work, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the Catalog). If the student has not completed major coursework or equivalents in the department's undergraduate program, he or she will be required to complete the graduate degree program with the advisor's approval. Some of the 30 semester hours required for the degree may be taken outside the department in selected subjects as philosophy, history, linguistics, or other languages.

Professionally, the student may receive two 2-semester hours of credit for satisfactory completion of the thesis. The thesis topic may be either linguistic or literary, and is subject to approval by the faculty.

**Foreign Study**

The Department of German participates in the Regents Summer Program in Austria. Sponsored by the three Iowa Regents universities, this program is open to students in all disciplines.

A three-week session is conducted at St. Radegund, near Graz, Austria. Instruction in both language and culture is provided on appropriate levels. A second four-week session is held in Vienna, where faculty of the International University at the University of Vienna conduct morning classes daily, again on several levels. An independent travel period is scheduled during the program.

To participate, the student must be admitted to one of the three Iowa Regents universities for the summer semester. Applicants should have a good basic knowledge of German—normally two years of college-level German or the equivalent. Students with less than two years may be accepted with the approval of the campus coordinator.

Graduate students are eligible to apply. All students are expected to speak only German while participating in the program. Program grants are available for qualified applicants.
Financial Aid
Teaching assistantships, research assistantships, teaching/research fellowships, and research fellowships are available for qualified graduate students. The department awards the Wilson and the Funk prizes to students of distinction.

Courses
Primarily for Undergraduates

109:00 Cooperative Education Internship 9.0 s.

110:00 First-semester Dutch 4.0 s.
Undergraduate study of a native Dutch student to teach a Dutch with your program. Introduction to Dutch grammar, literature, and vocabulary.

111:00 Second-semester Dutch 4.0 s.
Spoken and written Dutch proficiency, with emphasis on simple texts. Introductions to grammar and vocabulary.

111:00 Third-semester Dutch 3.0 s.
Conferences on developing skills in the oral language and speaking of advanced Dutch. Introduction to Dutch grammar, literature, and vocabulary.

112:00 Fourth-semester Dutch 3.0 s.
Conferences on developing skills in the oral language and speaking of advanced Dutch. Introduction to Dutch grammar, literature, and vocabulary.

113:00 German and German for Travelers 2.0 s.
Dutch and world language requirement.

115:00 Elementary German I 2.0 s.
Introduction to German language and culture through oral and written readings of Dutch. Development of speaking and writing skills in the German language.

115:00 Elementary German II 2.0 s.
Introduction to German language and culture through oral and written readings of Dutch. Development of speaking and writing skills in the German language.

115:00 Intermediate German I 2.0 s.
Continuation of German I, with emphasis on language proficiency. Intensive study of German grammar and vocabulary. Development of speaking and writing skills in the German language.

115:00 Intermediate German II 2.0 s.
Continuation of German I, with emphasis on language proficiency. Intensive study of German grammar and vocabulary. Development of speaking and writing skills in the German language.

115:00 Conversational German 1.5 s.
Conferences on developing skills in the oral language and speaking of advanced German. Introduction to German grammar, literature, and vocabulary.

115:00 Conversational German 2.0 s.
Conferences on developing skills in the oral language and speaking of advanced German. Introduction to German grammar, literature, and vocabulary.

115:00 Cultural History of Germany 3.0 s.
Historical overview of German culture. Development of speaking and writing skills in the German language.

115:00 Principles and Techniques of Translation 3.0 s.
Introduction to theory of translation and practical techniques for the oral and written translation of German literature and culture.

115:00 Projects and Composition 2.0 s.
The student engages in an individual translation project as an advanced work in their own field of interest. Development of speaking and writing skills in the German language.

115:00 Study Abroad Program in Austria 3.0 s.
Seminar on the modern German language and culture. Development of speaking and writing skills in the German language.

115:00 Survey of German Literature 3.0 s.
Historical overview of German literature. Development of speaking and writing skills in the German language.

115:00 Business German 3.0 s.
Introduction to the world of German business and the German business environment. Development of speaking and writing skills in the German language.

115:00 Contemporary German Civilization 3.0 s.
Survey of modern German literature. Development of speaking and writing skills in the German language.

115:00 Advanced German Composition 1.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 2.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 3.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 4.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 5.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 6.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 7.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 8.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 9.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 10.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 11.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 12.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 13.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 14.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 15.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 16.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 17.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 18.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 19.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 20.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 21.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 22.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 23.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 24.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 25.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 26.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 27.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 28.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 29.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 30.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 31.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 32.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 33.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 34.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 35.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 36.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 37.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 38.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 39.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 40.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 41.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 42.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 43.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 44.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 45.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 46.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 47.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 48.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 49.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 50.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 51.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 52.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 53.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 54.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 55.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 56.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 57.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 58.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 59.0 s.
Further development of speaking and writing skills in the German language.

115:00 Advanced German Composition 60.0 s.
Further development of speaking and writing skills in the German language.
Courses

47:1 Global Interdependence and Human Survival
3 s.h.
Introduction to problems of the Global Studies Program: basic information, methods of understanding, and major issues and events. Offered in the fall of eachodd-year.

47:239:1 Asia
3 s.h.
Interdisciplinary study of the political, economic, and social life of the Asian countries.

47:239:21 Africa
3 s.h.
Interdisciplinary study of the political, economic, and social life of African countries.

47:239:23 Euro-Atlantic Europe
3 s.h.
Interdisciplinary study of the political, economic, and social life of Euro-Atlantic Europe.

47:239:24 Latin America
3 s.h.
Interdisciplinary study of the political, economic, and social life of Latin America.

47:239:25 Middle East
3 s.h.
Interdisciplinary study of the political, economic, and social life of the Middle East.

47:314 Prehistory in Global Studies Seminar
3 s.h.
Survey course, dealing with the subject matter of a particular semester. It could substitute for one of the listed courses among the four divisions of global studies. May be repeated with consent of instructor.

47:317:1 Contemporary Europe:
3 s.h.
European News Colloquium
47:317:13 Africa:
3 s.h.
Africa News Colloquium
47:317:14 Global Studies:
3 s.h.
Global Studies Colloquium

Greek
See "Classics."

History

Chair: Malcolm J. Rotberg


The purpose of the Department of History is to increase knowledge of human experience and provide students with opportunities to gain information about and learn methods for understanding the world in light of its past. In addition to offering these essential elements of liberal education, the department trains professional historians and teachers of history, serves those who require a knowledge of a period or aspect of history as background for their own specialized interests in other fields, and participates in several interdisciplinary programs, such as American civilization, African American World Studies, Asian studies, Latin American studies, and women's studies.

Undergraduate Program

Baccalaureate graduates in history work in a variety of positions in business, public service, or journalism. Many plan further training in history, law, religion, library and information science, or social work.

A major in history includes work in other fields that will illuminate and expand the meaning of history courses as well as introduce the undergraduate to different bodies of information and approaches to understanding the ways societies and cultures worked. For example, students majoring in history are encouraged to fulfill the College of Liberal Arts degree requirement in a foreign language by selecting a language that fits their history interests.

The general major is for students with a general interest in history. The program requirements are:

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; this limitation is imposed to assure acquaintance with the history of at least one society besides our own.

Three semester hours in 16:51 Colloquium for History Majors; a colloquium consists of a small number of students collectively studying problems in ways that give training and experience in group discussion, analysis, and criticism; it is best taken after the student has finished a number of other history courses.

Of the 24 semester hours of history required for the major, 12 (including the 3 semester hours of colloquium) must be taken in residence at The University of Iowa.

A minimum of 16 to 18 semester hours of course work in related areas, such as anthropology, economics, fine arts (excluding studio courses), geography, literature (excluding workshop courses), philosophy, political science, psychology, religion, and sociology, or a second major in one of these areas; courses...
tions to satisfy General Education Requirements will not be counted toward the related area requirement.

Students majoring in history may waive 1 semester hour of the General Education Requirement in historical perspectives. They may not receive credit toward this requirement by taking any of the following courses taught by members of the history faculty: Hist 110-115 Professions in Human History; Hist 161 Western Civilization from 792; and Hist 4 Civilizations of Asia, nor may any of these courses be included in the 24 semester hours of history required for the general major in history.

Teacher Certification

Students majoring in history who wish to qualify for a teaching certificate must choose one area of concentration in history and meet these requirements: American History Concentration

Courses in U.S. History (including 16.5:1) Collisions for History Majors

30 s.h.

Courses in related areas

24 s.h.

Students must select 12 semester hours of course work in each of two related areas chosen from among the following five: economics, geography, world history (non-U.S.). political science, sociology.

Students must also meet a special requirement in early European history by taking one of 16.1:107, or 16.1:119 (3 semester hours). This course may also be counted toward the related areas requirement in world history if it is one of the two areas chosen. Courses in economics, geography, political science, or sociology have been selected to satisfy the General Education Requirement in social science may be applied to the required hours in related areas, but no more than 12 semester hours may be applied to any one related area.

World History Concentration

Courses in non-U.S. History (including 16.5:1) Collisions for 30 s.h.

History Majors and one of 16.1:107, or 16.1:119

Courses in related areas

24 s.h.

Students must select 12 semester hours of course work in each of two related areas chosen from the following five: economics, geography, world history (non-U.S.), political science, sociology.

Courses in economics, geography, political science, or sociology that have been targeted to satisfy the General Education Requirement in social science may be applied to the required hours in related areas, but no more than 12 semester hours may be applied in any 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 with the advisor in the 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 major experience or individual research. To undertake the honors major in history, the student must be admitted to the College of Liberal Arts Honors Program by the director of that program, and to the honors program in history by the department. Application should be made by the beginning of the junior year. Successful completion of the honors major leads to the Bachelor of Arts degree with honors in history. Requirements are:

A minimum of 24 semester hours in courses offered by the Department of History, of which at least 12 semester hours must be in non-U.S. history; a minimum of 10 to 15 semester hours in related courses (see general major in history); at least 9 semester hours in the department's honors course, which may include up to 6 semester hours of honors essay credit.

Successful defense of an honors essay.

Honors credit may be obtained on honors seminar, honors tutorial, and supervised research for the honors essay (the honors seminar fulfills the colloquium requirement of the general major).

The honors essay should be a 30-40 page paper based on research in primary sources; a committee of three faculty members will hear each of the essay, usually in the 12th week of the student's last semester.

Graduate Programs

The graduate programs in history prepare students to teach in high schools or colleges, and for such occupations as publishing, commercial research, government or other public service. With additional specialized training, students of history become qualified for careers in archivists, work library, work, or historical art preparation and display. Some students enter the program for degrees in both law and history (see the "College of Law" section of the Catalog).

Qualified graduate students are invited to apply for fellowships and assistantships. Applications should be directed to the departmental office.

Master of Arts

There are two M.A. programs in the history department. The first is for students who plan to work toward the Ph.D. degree. It requires a minimum of 26 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours of work in the history department, including at least two seminars in one seminar and one readings course. Our seminar must be taken within 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 the second division, including either a seminar or a seminar 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. The essay usually begins as a term paper for the seminar in the major division and is completed under the supervision, under the guidance of the supervisor, when the student is enrolled in 16.296 Individual Study Graduate. The finished product should include a sufficient portion of the learning, just as will the dissertation later on save the form of the full-length scholarly monograph. The alternate plan for the M.A. is designed for students who do not intend to pursue the doctorate in history. The basic course requirements are the same as those for the Ph.D.-track M.A. They earn 30 semester hours overall; 24 in history, 12 in one major division, including a minimum of 12 in one reading or seminar course. The two plans differ mainly in respect to concentration in history, whereas the Ph.D. track emphasizes the development of a major research expertise. In the essay, the alternate plan stresses breadth of learning. Students in the alternate plan must take at least six semester hours in each of the other two divisions in history, or change semester plans in history in the 8th semester or in a related department. Included in these 12 semester hours must be at least one reading or seminar course in history.

After completing these requirements, or during the semester in which they are to be completed, the M.A. candidate must take an oral and written comprehensive exam 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 Graduate College's requirements for admission to the Graduate College (see the "Graduate College" section of the Catalog), and must submit a specimen of their writing, such as a research essay or a seminar paper, to the faculty. They must take a research seminar during their last semester at the University of Iowa. The candidate must earn at least 72 semester hours of credit, including credit
for work three toward the master’s degree. The 72 semester hours must include at least 36 semester hours (eight courses) in 200-level history courses, apart from thesis credit. At least 20 of these 36 hours must be completed before the student takes the comprehensive examinations, and at least 20 of these 36 hours must be completed at The University of Iowa. Research seminars taken at the N.A. level may be counted toward this 36-hour requirement. The candidate also must earn 2 seminar hours of credit in the philosophy of history, historiography, or methods of historical research.

The department has no common language requirement for the Ph.D., but the supervisor 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 constitute the comprehensive examination until these requirements have been met.

The comprehensive written and oral examination covers four distinct fields, at least three of them in history. The fields in history must be chosen from at least two of these divisions:

- The Ancient World
- Medieval Europe
- Europe, including Great Britain, 1500 to 1815
- Europe, including Great Britain, 1815 to present
- Russia and the Soviet Union
- United States history
- Latin American history
- History of China
- History of Japan
- History of India
- Economic history

The committee may define and delimit the individual fields for examination. It may also set, separately for each field, the character of the written portion of the Comprehensive examination, which may take the form of a syllabus, a critical bibliography, a research paper, or any other form of combination of these or other forms that the committee deems suitable. The oral portion of the comprehensive examination will focus on issues and problems arising from the examination papers.

Admission

Applicants for admission to the graduate program in history must meet the general requirements for admission to the Graduate College: academic transcripts, letters of reference, and Graduate Record Examination (GRE) Aptitude Test scores. In addition, students must submit to the history department a writing sample, or a term paper, seminar paper, or MLA thesis. These materials must be submitted by April 10 for admission to the fall semester of fall semester, or by November 10 for spring semester. The application for graduate awards forms is separate, with a February 10 deadline. New students writing for aid must submit the application for admission when they apply for aid, or earlier.
Home Economics

Undergraduate Programs

The undergraduate programs prepare students for immediate employment as professional home economists and for advanced study. The home economics core provides a central body of knowledge and a basic understanding of relationships among the various subject areas within home economics. In addition to a major or a minor in home economics, the department supports joint programs with disciplines such as journalism, art, social work, and education.

In meeting the general requirements for the B.A. or B.S. degree of the College of Liberal Arts, students majoring in home economics need to select courses in other departments that also are prerequisites for home economics courses.

Bachelor of Arts

All students majoring in home economics complete the following core:

13.5 Human Development and the Family 3 s.h.
14.41 Food, Nutrition, and You 3 s.h.
17.16 Design and the Environment 3 s.h.
17.18 Textiles for Consumers 3 s.h.
17.11 Management of Family Resources 3 s.h.
17.190 Junior: Home Economics 2 s.h.
Selection of additional courses in home economics is based on interests and professional goals.

Apparel, Fiber Art, and Design Option 1: Apparel and Textile Merchandising

Students interested in apparel and textile merchandising opt to develop competence in merchandising of apparel and textile products, evaluation of the quality of apparel and textile products, knowledge of the apparel needs of specific groups such as the handicapped or elderly, appreciation of general business principles, and use of the concepts of a liberal education. In addition to the home economics core previously listed, the following courses are required:

13.70 Introductory Clothing Construction 3 s.h.
15.73 Apparel, Fashion, and Selection 3 s.h.
17.179 Design and Shopping Plans 3 s.h.
17.193 Fashion Merchandising 3 s.h.
17.180 Textile Technology and Analysis 3 s.h.
17.195 Textile and Apparel Economics 3 s.h.

6.1 Introduction to Financial Accounting 3 s.h.
6.2 Principles of Economics 3 s.h.
6.2 Principles of Microeconomics 3 s.h.
6.2 Principles of Macroeconomics 3 s.h.
6.191 Administrative Management 3 s.h.
6.195 Introduction to Marketing 5 s.h.
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/7 General Chemistry I plus a 4/5</td>
<td>7.0 s.h.</td>
</tr>
<tr>
<td>12.3-12.16 Principles of Chemistry I</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>12.1 Laboratory</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

The following courses, with credit approved by adviser:
- A course in mathematics above 201A: 3.0 s.h.
- A course in statistics: 3.0 s.h.
- A course in computer science: 3.0 s.h.
- A course in communication: 3.0 s.h.

The student and his/her adviser will select the remaining 15 semester hours from courses in business administration, social and natural sciences, mathematics, statistics, computer science, communication studies, theatre arts, and home economics.

**Option 2: Design and Fiber Arts**

Students interested in developing an understanding and appreciation of concepts unique to design by drawing upon the humanities, the arts, and the sciences should select the option. Professional goals focusing on residential and contract interior design, space planning, design consulting, merchandising, fabric design, decor and showroom fiber art, and historical restoration and preservation require the following courses in addition to the home economics core listed previously:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.52 Presentation Graphics</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>17.54 Interior Design: Principles and Practices I</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.55 Survey of Historic Interiors</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.56 Survey of Modern Interiors</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.57 Hotel Planning and Design</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.58 Housing Planning and Structural Aspects</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

**Option 1: Home Economics Education**

Students seeking certification endorsement and/or vocational approval to teach in home economics must select this option. Students are prepared with subject matter and professional competence required for teaching home economics in vocational and nonvocational secondary schools, for working as educators with organizations, business, industry, the home economics extension services, and other agencies. For teaching in preschool settings and for graduate study. The following courses are required for this option in addition to the home economics core listed previously:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.53 Introductory Food Study</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>17.55 Food Study Laboratory</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>17.57 Personal Financial Management</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.59 Marriage and Family Interaction</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.60 Parent-Child Relationships</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.60 Curriculum: Home Economics</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.62 Evaluation: Home Economics</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>17.63 Housing: Planning and Architectural Aspects</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.70 Customary and Contemporary Tailoring</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.71 Fitting Problems and Flat Pattern Design</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>1B.5 Elements of Art</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>12.1 Elements of Art</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>12.15 Principles of Microeconomics</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>12.16 Principles of Macroeconomics</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>12.17 One of the following: depending on professional goals:</td>
<td></td>
</tr>
<tr>
<td>17.153 Interior Design: Principles and Practices II</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.156 Weaving</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.164 Farms and Farms</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.166 Housing: Social and Psychological Aspects</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

One other interior design, fiber art, or housing course selected according to professional goals: 2.0 s.h.

Electives from home economics, business administration, urban and regional planning, art history, studio art, social sciences, and theatre arts are recommended.

**Family Science**

**Option 2: Nutrition**

Students with a strong interest in science and in specialized training in nutrition should select this option, which is designed to prepare a student for an entry-level position as a nutritionist, food service manager, or consumer information specialist. The following courses are required in addition to the home economics core listed previously:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.53 Introductory Food Study</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>17.55 Food Study Laboratory</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>17.57 Personal Financial Management</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.59 Marriage and Family Interaction</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.60 Parent-Child Relationships</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.60 Curriculum: Home Economics</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.62 Evaluation: Home Economics</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>17.63 Housing: Planning and Architectural Aspects</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.70 Customary and Contemporary Tailoring</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.71 Fitting Problems and Flat Pattern Design</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>1B.5 Elements of Art</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>12.1 Elements of Art</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>12.15 Principles of Microeconomics</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>12.16 Principles of Macroeconomics</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>12.17 One of the following: depending on professional goals:</td>
<td></td>
</tr>
<tr>
<td>17.153 Interior Design: Principles and Practices II</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.156 Weaving</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>

**Option 3: Distinction**

Students interested in qualifying for a postbaccalaureate dietetic internship must complete the following approved American Dietetic Association Plan V generalist dietetic option in addition to the home economics core listed previously:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.33 Meal Management</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>17.34 Food Study Laboratory</td>
<td>2.0 s.h.</td>
</tr>
<tr>
<td>17.35 Experimental Food I</td>
<td>3.0 s.h.</td>
</tr>
<tr>
<td>17.36 Food Study Systems Management</td>
<td>3.0 s.h.</td>
</tr>
</tbody>
</table>
17:137 Food Service Systems Administration
3 s.h.
17:144 Human Nutrition
3 s.h.
17:146 Nutrition Laboratory
2 s.h.
17:147 Diet Therapy
3 s.h.
4:13 Principles of Chemistry 3-5
6 s.h.
4:16 Principles of Chemistry Laboratory I
2 s.h.
4:21 Organic Chemistry I
3 s.h.
98:110 Biochemistry
3 s.h.
46:1 Principles of Microeconomics
3-4 s.h.
46:100 Administrative Management
3 s.h.
76:131 Educational Psychology
3 s.h.
76:171 (76:107) Psychological Bases of Instructional Design
3 s.h.
34:1 Introduction to Sociology: Principles
3 s.h.
34:1 Elementary Psychology
3-4 s.h.
61:157 General Microbiology
5 s.h.
72:136 Human Physiology
4 s.h.
113:3 Introduction to the Study of Culture and Society
4 s.h.

Electives should be selected, according to the student's professional objective. From the natural sciences, business administration, psychology, computer science, statistics, education, home economics, journalism, and mass communication, instructional design and technology, counseling, social work, anthropology, sociology, or physical education.

This option fulfills minimum academic requirements of the American Dietetic Association, the Nutrition Foundation. All students applying for a postbaccalaureate internship should have their programs corporately screened during the first semester of the senior year.

Option 4: Family Studies
Students who want specialized training in individual and family dynamics from the psychological, social, and familial perspectives, child development and parent-child relations, adolescence in a family context, marital relationships, aging studies, and financial management should select this option. This option prepares students for careers with agencies and services concerned with the total family and its functioning, for family life education, and for extension services. The following courses are required in addition to the home economics core listed previously.

17:10 Growth and Development of the Young Child
3 s.h.
or
17:104 Adolescence and the Family
3 s.h.
19:108 Basic Aspects of Aging
3 s.h.
17:112 Personal Financial Management
3 s.h.
17:113 Marriage and Family Interaction
3 s.h.
17:114 Parent-Child Relationships
3 s.h.
17:122 Materials and Methods in Family Life Education
3 s.h.
17:200 Cooperative Education
2-3 s.h.
17:19 Home Economics Internship
1-4 s.h.
31:1 Elementary Psychology
3-4 s.h.

46:1 Introduction to Sociology: Principles
3 s.h.
34:1 Family in Various Societies
3 s.h.
or
46:1 American Family Society
3 s.h.
06:3 Principles of Microeconomics
3-4 s.h.
or
06:3 Principles of Macroeconomics
3-4 s.h.
Electives from home economics, education, social work, economics, psychology, and sociology are recommended.

Bachelor of Science

The B.S. degree is recommended for students who want greater depth or breadth in the natural sciences and for those interested in entry-level positions in research laboratories in colleges and universities, industry, or government.

Family Science
Option 1: Home Economics Education
Graduates can enter the careers described for the B.A., Family Science—Option 1. The B.S. degree enables students to obtain greater depth and breadth in the natural and social sciences by completing the following courses in addition to the courses required for the B.A., Family Science—Option 1.

17:1 General Chemistry I/II
6 s.h.
A course in statistics or computer science
3 s.h.
Four courses from the natural sciences or four courses from the social sciences numbered 100 or above
12-16 s.h.

Option 2: Nutrition
The natural science base of this option provides excellent preparation for graduate work in food and nutrition. In addition to all of the courses listed under Family Science—Option 2 for the B.A. degree, the B.S. degree requires the following courses:

12:22 Basic Algebra I and II
4 s.h.
12:20-23 Algebra and Basic Geometry or high school equivalent
6 s.h.
12:20-23 Elementary Functions or high school equivalent
3 s.h.
22:25 Calculus I
4 s.h.
29:12-12 College Physics
8 s.h.
4130 Physical Chemistry for the Life Sciences
8 s.h.
99:140 Experimental Biochemistry
4 s.h.

For this option, enrollment in 99:120 and 99:130 is recommended in place of 99:130.

Cooperative Education/Internship Program
The department participates in the University's Cooperative Education Program, which enables students to obtain work experience related to their professional goals and academic programs. Majors who meet the department's requirements may apply to the department's cooperative education committee to participate in this program. Students require for 12600 Cooperative Education Internship at the time of their work experience and for 12600 Home Economics Internship during the subsequent semester.

Honor
To be eligible for honors, the student must have junior standing, 36 semester hours in residence at the University, an overall cumulative grade-point average of 3.5 or above, a grade-point average of 3.2 in all home economics courses, and at least 12 semester hours completed in home economics. Home economics work consists of 17:220 Honor Seminar, Home Economics and 17:222 Students Problems: Home Economics, in which students do creative work or a research project. A written report or honors thesis and an oral examination are required.

In addition, students may contact with an instructor to receive honors credit for any 100-level or above home economics course, the contract, which must be approved by the Honors Program, specifies the work the student must complete to receive the honors credit for the course.

Minor
A minor in home economics is available for students majoring in other departments. The home economics minor requires 15 semester hours. The home economics courses taken at the University of Iowa, including at least 12 semester hours in 100-level or above courses. Home economics courses taken at other institutions, by correspondence, or on a pass-fail basis will not apply toward requirements for the minor in home economics. Students pursuing a minor in home economics are encouraged to consult with a home economics faculty member when selecting courses.

Graduate Programs
The demand for well-trained professional home economists exceeds the number of graduates with advanced degrees. The master's degree graduate may qualify for positions in colleges, secondary schools, business, industry, and government.

The graduate programs enable students to continue their education up to specialization in one of the two subject areas: apparel, fiber art, and design; or family science. The department offers both thesis and nonthesis tracks. The thesis track is recommended for students preparing for teaching and research in colleges and universities, positions in industry, and continued study beyond the master's degree. The nonthesis track permits more intensive experience in research procedures or the opportunity for extensive
creativity. The thesis may be undertaken in the department or in cooperation with related departments or colleges.

To be admitted unconditionally, the student must have an overall grade-point average of 2.9, with 3.0 in the area of major interest in graduate study. Conditional admission requires an overall grade-point average of 2.5 with 2.8 in the area of major interest in graduate study. Applicants interested in fiber art or interior design must present an acceptable portfolio and meet the necessary grade-point requirements for regular admission.

Master of Arts, Master of Science

For each of the Master of Arts (M.A.) or Master of Science (M.S.) degree, students must complete a minimum of 30 semester hours of graduate work with a thesis, or 36 semester hours of graduate work without a thesis, in addition to adequate prerequisites for courses selected. Students without an unconditionally strong background in their subject area may need to take additional coursework and should anticipate exceeding the minimum hours specified for the degree. Students who lack required background courses will be required to complete these courses early in their programs, and such courses will not apply to the student's graduate program. Approximately one-third of the student's coursework is completed in departments other than home economics. This support work must have been in the area of study and the courses must be taken for a letter grade except under special conditions. Students selecting the M.S. degree program should anticipate additional courses in the social or physical sciences that will be determined in consultation with their advisor. All students in the M.A. and M.S. programs are required to complete the Basic Apprenticeship in Food, Nutrition, and Philosophy of Home Economics and a minimum of 15 semester hours of 17,502 Research Methods and/or 17,203 Form and Structure in Art. Those in the thesis track also complete 17,201 Research Problems or 17,252 Advanced Studio Problems and 17,259 Thesis. Those in the nonthesis track also complete 17,201 Special Projects Seminar.

All degree options require written and oral comprehensive examinations.

Apparel, Fiber Art, and Design

Graduate study in apparel, fiber art, and design may be planned as a specialized master's program in apparel, fiber art, or design. Each student's program will be developed in consultation with the academic advisor according to the needs and goals of the student and the requirements of the specialization. Applicants interested in fiber art or interior design must present an acceptable portfolio and meet the necessary grade-point requirement for regular admission. Applicants interested in apparel need a background in apparel, textiles, mathematics, and natural science and must meet the necessity grade-point requirement for regular admission.

Career opportunities for the graduate student pursuing this area of home economics include merchandising, textile research, teaching, extension, interior design, fiber art, historic preservation and restoration, and positions in business and industry. Students may select the Master of Arts with or without thesis or the Master of Science with or without thesis. It is expected that the thesis track will lead to the individual who plans to become a college teacher, who wishes to continue study toward the M.F.A. or Ph.D. degrees, or who intends to do historic preservation and restoration.

Required courses in addition to those stated previously are:

17,250 Readings in Apparel, Fiber Art, Design 2-3 s.h.

One of the following:

17,255 Advanced Problems in Interior Design 3 s.h.
17,260 Graduate Workshop in Fiber Art 3 s.h.
17,382 Experimental Textiles 2-3 s.h.

One of the following:

17,150 Survey of Historic Interiors 3 s.h.
17,156 Survey of Modern Interiors 3 s.h.
17,162 Weaving 3 s.h.
17,166 Housing: Social and Psychological Aspects 3 s.h.
17,183 Textile and Apparel Economics 3 s.h.
17,185 Costume History 3 s.h.

A course in statistics (depending on interest) 3 s.h.

Other courses may be required depending on the background of the student.

Electives in anthropology, art, archeology, business administration, chemistry, classics, education, history, journalism, photography, psychology, radio and television, sociology, speech, theatre, design, and urban and regional planning may be selected to strengthen the individual student's program.

Family Science

Graduate study in family science may be planned as a specialized program in family studies, aging studies, nutrition/nutrition education, or home economics education. Each student's program will be developed in consultation with the academic advisor according to the needs and goals of the student and the requirements of the specialized program. Depending on the major area of interest, the student will need background courses in education, sociology, psychology, social work, food, nutrition, food service systems, general organic chemistry, mathematics, physiology, and microbiology. Career opportunities for the graduate student pursuing this area of home economics include work with agencies concerned with the family, college and university teaching positions as a nutritionist, dietitian, nutrition research specialist, or extension specialist, and positions in industry and business.

Students may select the Master of Arts with or without thesis or the Master of Science with or without thesis.

Required courses in addition to those stated previously are:

Two to three of the following:

17,211 Individual and Family Development: Life Span 3 s.h.
17,212 Theory and Research in Family Studies 3 s.h.
17,215 Seminar: Family or Consumer Studies 3 s.h.
17,223 Seminar: Home Economics Education 3 s.h.
17,242 Seminar: Family Science 3 s.h.
17,245 Seminar: Educational Strategies in Family Finance 3 s.h.
17,246 Readings in Family Science 3 s.h.

A course in statistics 3 s.h.

Other courses may be required depending on the background of the student.

Electives in anthropology, biochemistry, chemistry, communications, computer science, economics, education, home economics, journalism, microbiology, preventive medicine and environmental health, sociology, social work, sociology, or statistics will strengthen the individual student's program.

Master of Arts in Teaching

The Master of Arts in Teaching program is designed for students with an undergraduate degree in home economics who have had at least one year of professional education courses. The program is nonthesis and requires written and oral comprehensive examinations. Graduates hold a home economics teacher's certificate with vocational approval. Applicants require a bachelor's degree in home economics and a 2.0 minimum undergraduate grade-point average, and must be admitted to the M.A.T. program in the College of Education.

The program requires 28 semester hours of graduate course work in education and at least 18 semester hours of graduate work in home economics. For certification, the student must complete (at the undergraduate and graduate level) a course in American politics or American government, 17,119 Human Relations for the Classroom Teacher, and two courses in each of the following housing and interior design, family development, food and nutrition, housing, personnel management, and textiles and clothing.

Other courses required for the M.A.T. program are:
A limited number of assistantships are available to graduate students.

Courses

Primarily for Undergraduates

17.138 Cooperative Education Internship 0.6 h.

17.146 Human Development and the Family 3 h.

17.150 Introduction to Social Psychology and the Development of Social Behavior 3 h.

17.160 Growth and Development of the Young Child 3 h.

17.165 Food, Nutrition, and Diet 3 h.

17.170 Introductory Food Study 2 h.

17.180 Nutrition for the Physically Handicapped 3 h.

17.190 Nutrition and Diet Therapy 3 h.

17.210 Diet and the Environment 3 h.

17.220 Food, Nutrition, and Diet 3 h.

Financial Aid

Several annual departmental awards recognize undergraduate students for their outstanding qualities and performance. The Faculty Book Award recognizes the sophomore home economics major with the highest grade-point average. The student in each class with the highest grade-point average, provided the grade-point average is at least 3.7, is awarded a Certificate of Outstanding Academic Achievement. The Margaret Foster Hull Award recognizes a senior in the dietetics program. These awards are given to students who have been outstanding in their academic work.

Credit for Transfer Courses

Students who have taken courses in home economics while enrolled in another college may be granted credit for courses taken at other institutions, provided the courses are requisite to the requirements for graduation at this institution. Transfer credit is granted on a course-by-course basis and is granted only for courses in which a grade of C or better is earned. Transfer credit is not available for courses below the 100 level. The maximum number of transfer credits that will be accepted toward the degree is 90.

Certification Program

Students with the B.A. or B.S. degree in home economics may enroll in the certification program in order to meet the requirements for teaching vocational home economics in secondary schools. Courses for this program are selected according to the student's background and professional goals. See the "College of Education" and "Secondary Education" sections of the Catalog.

17.121 Curriculum: Home Economics 3 s.h.

17.128 Evaluation: Home Economics 2 s.h.

17.200 Educational Psychology 3 s.h.

17.202 Methods: Home Economics 3 s.h.

17.210-102 Observation and Laboratory Practice in the Secondary School 12 s.h.

17.217 History of Western Education 2 s.h.

17.217 Philosophy of Education 2 s.h.

17.220 Communication Skills 3 s.h.

17.222 Conceptualization and Practice in Pedagogical Education 2 s.h.

17.222 Psychological and Teaching Sciences of Education 2 s.h.

17.222 Course Planning and Organization 2 s.h.

17.222 Educational Psychology 2 s.h.

17.222 Cultural Perspectives on Teaching and Learning 2 s.h.

17.222 Educational Psychology 2 s.h.

17.222 Social Studies Education 2 s.h.

17.222 Health and Physical Education 2 s.h.

17.222 Exceptional Education 2 s.h.

17.222 Mathematics Education 2 s.h.

17.222 Special Education 2 s.h.

17.222 Science Education 2 s.h.

17.222 Social Studies Education 2 s.h.

17.222 Health and Physical Education 2 s.h.

17.222 Exceptional Education 2 s.h.

17.222 Mathematics Education 2 s.h.

17.222 Special Education 2 s.h.

17.222 Science Education 2 s.h.

17.222 Social Studies Education 2 s.h.

17.222 Health and Physical Education 2 s.h.

17.222 Exceptional Education 2 s.h.

17.222 Mathematics Education 2 s.h.

17.222 Special Education 2 s.h.

17.222 Science Education 2 s.h.

17.222 Social Studies Education 2 s.h.

17.222 Health and Physical Education 2 s.h.

17.222 Exceptional Education 2 s.h.

17.222 Mathematics Education 2 s.h.

17.222 Special Education 2 s.h.

17.222 Science Education 2 s.h.

17.222 Social Studies Education 2 s.h.

17.222 Health and Physical Education 2 s.h.

17.222 Exceptional Education 2 s.h.

17.222 Mathematics Education 2 s.h.

17.222 Special Education 2 s.h.

17.222 Science Education 2 s.h.

17.222 Social Studies Education 2 s.h.

17.222 Health and Physical Education 2 s.h.

17.222 Exceptional Education 2 s.h.

17.222 Mathematics Education 2 s.h.

17.222 Special Education 2 s.h.
Hospital and Health Administration

See "College of Medicine."

Iowa Lakeside Laboratory

Director: Richard V. Huntberg
Professor: Richard V. Huntberg (Biology, The University of Iowa); George T. Neale (Zoology, Iowa State University); William R. Craven (Biology, The University of Iowa); Lawrence J. Eiler (Biology, University of Northern Iowa); Donald R. Farno (Biology, Iowa State University); Lawrence G. Mucken (Zoology, Iowa State University); Lois B. Tiffany (Biology, Iowa State University)

Visiting professors: William J. Platt (Associate Professor of Biology, Tall Timbers Research Station, Tallahassee, Florida); Charles W. Reiner (Dissertation Herbistan, Philadelphia Academy of Natural Sciences).

The Iowa Lakeside Laboratory is a biological field station comprising approximately 140 acres of prairie and forest along the west shore of Lake Okoboji in northwest Iowa.

The laboratory was established in 1909 under the leadership of Thomas M. McWhinney, whose residence as a University of Iowa professor and geologist from 1878 to 1914 was recognized by his appointment as University president, 1914-1916. The lab site was the first area set aside by the conservation and study of the rich flora and fauna of the northern Iowa lake and prairie regions.

Since 1947, the University of Iowa has cooperated with Iowa State University and the University of Northern Iowa in the lab program. Representatives of the three schools make up the advisory board, which determines the scientific and educational policies of the lab.

The Iowa Lakeside Laboratory offers course work in two five-week terms during the summer season. Enrollment is limited to not more than 5 semester hours of credit per term.

The laboratory gives advanced undergraduate and graduate students the opportunity to study plant and animal life in its natural setting. Such supplements, and does not replace, regular course work taken formally by accredited colleges.

Financial Aid

The University of Iowa has established several Thomas H. Marshall Scholarships in Natural Science for undergraduate and graduate students attending the laboratories. The scholarships cover Iowa Lakeside Laboratory tuition costs. Scholarship applications are sent April 1.

Registration

Current or former students of The University of Iowa, the University of Northern Iowa, and Iowa State University should ask their registrars for information. Students from other institutions must apply for admission to one of the three cooperating universities; such has a provisional admission policy for students who wish to register for summer work only. Early registration is advisable. All applications should be submitted before May 1 for the following summer session.

Courses

Permission of the instructor is required for all courses. Enrollment is limited to six students in each course. Classes meet all day, every day. Courses vary from year to year (see annual Iowa Lakeside Laboratory bulletin). The following are representative:

I-L 100 Field Natural History 3.0 hrs.

I-L 101 Field Botany 3.0 hrs.

I-L 102 Field Zoology 3.0 hrs.

I-L 103 Aquatic Ecology 3.0 hrs.

I-L 104 Aquatic Ecology Project 1.0 hrs.

I-L 105 Plant Taxonomy 3.0 hrs.

I-L 106 Pharmaceutical Biology 3.0 hrs.

I-L 107 Population Biology 3.0 hrs.

I-L 108 Field Entomology 3.0 hrs.

I-L 109 Field Ecology 3.0 hrs.

I-L 110 Fresh Water Algae 3.0 hrs.

I-L 111 Fish Ecology 3.0 hrs.

I-L 112 Genetics 3.0 hrs.

I-L 113 Independent Study 1.0 hrs.

I-L 114 Independent Study 1.0 hrs.

I-L 115 Field Micromorphology 1.0 hrs.

I-L 116 Soil Micromorphology 1.0 hrs.

I-L 117 Soil Micromorphology 1.0 hrs.

I-L 118 Soil Micromorphology 1.0 hrs.

I-L 119 Soil Micromorphology 1.0 hrs.

I-L 120 Soils of Lakesides 1.0 hrs.

I-L 121 Soil Micromorphology 1.0 hrs.

I-L 122 Soil Micromorphology 1.0 hrs.

I-L 123 Soil Micromorphology 1.0 hrs.

I-L 124 Soil Micromorphology 1.0 hrs.

I-L 125 Field Entomology 3.0 hrs.

I-L 126 Field Entomology 3.0 hrs.

I-L 127 Field Entomology 3.0 hrs.

I-L 128 Field Entomology 3.0 hrs.

I-L 129 Field Entomology 3.0 hrs.

I-L 130 Field Entomology 3.0 hrs.

I-L 131 Field Entomology 3.0 hrs.

I-L 132 Field Entomology 3.0 hrs.

I-L 133 Field Entomology 3.0 hrs.

I-L 134 Field Entomology 3.0 hrs.

I-L 135 Field Entomology 3.0 hrs.

I-L 136 Field Entomology 3.0 hrs.

I-L 137 Field Entomology 3.0 hrs.

I-L 138 Field Entomology 3.0 hrs.

I-L 139 Field Entomology 3.0 hrs.

I-L 140 Field Entomology 3.0 hrs.

I-L 141 Field Entomology 3.0 hrs.

I-L 142 Field Entomology 3.0 hrs.

I-L 143 Field Entomology 3.0 hrs.

I-L 144 Field Entomology 3.0 hrs.

I-L 145 Field Entomology 3.0 hrs.

I-L 146 Field Entomology 3.0 hrs.

I-L 147 Field Entomology 3.0 hrs.

I-L 148 Field Entomology 3.0 hrs.

I-L 149 Field Entomology 3.0 hrs.

I-L 150 Field Entomology 3.0 hrs.

I-L 151 Field Entomology 3.0 hrs.

I-L 152 Field Entomology 3.0 hrs.

I-L 153 Field Entomology 3.0 hrs.

I-L 154 Field Entomology 3.0 hrs.

I-L 155 Field Entomology 3.0 hrs.

I-L 156 Field Entomology 3.0 hrs.

I-L 157 Field Entomology 3.0 hrs.

I-L 158 Field Entomology 3.0 hrs.

I-L 159 Field Entomology 3.0 hrs.

I-L 160 Field Entomology 3.0 hrs.

I-L 161 Field Entomology 3.0 hrs.

I-L 162 Field Entomology 3.0 hrs.

I-L 163 Field Entomology 3.0 hrs.

I-L 164 Field Entomology 3.0 hrs.

I-L 165 Field Entomology 3.0 hrs.

I-L 166 Field Entomology 3.0 hrs.

I-L 167 Field Entomology 3.0 hrs.

I-L 168 Field Entomology 3.0 hrs.

I-L 169 Field Entomology 3.0 hrs.

I-L 170 Field Entomology 3.0 hrs.

I-L 171 Field Entomology 3.0 hrs.

I-L 172 Field Entomology 3.0 hrs.

I-L 173 Field Entomology 3.0 hrs.

I-L 174 Field Entomology 3.0 hrs.

I-L 175 Field Entomology 3.0 hrs.

I-L 176 Field Entomology 3.0 hrs.

I-L 177 Field Entomology 3.0 hrs.

I-L 178 Field Entomology 3.0 hrs.

I-L 179 Field Entomology 3.0 hrs.

I-L 180 Field Entomology 3.0 hrs.

I-L 181 Field Entomology 3.0 hrs.

I-L 182 Field Entomology 3.0 hrs.

I-L 183 Field Entomology 3.0 hrs.

I-L 184 Field Entomology 3.0 hrs.

I-L 185 Field Entomology 3.0 hrs.

I-L 186 Field Entomology 3.0 hrs.

I-L 187 Field Entomology 3.0 hrs.

I-L 188 Field Entomology 3.0 hrs.

I-L 189 Field Entomology 3.0 hrs.

I-L 190 Field Entomology 3.0 hrs.

I-L 191 Field Entomology 3.0 hrs.

I-L 192 Field Entomology 3.0 hrs.

I-L 193 Field Entomology 3.0 hrs.

I-L 194 Field Entomology 3.0 hrs.

I-L 195 Field Entomology 3.0 hrs.

I-L 196 Field Entomology 3.0 hrs.

I-L 197 Field Entomology 3.0 hrs.

I-L 198 Field Entomology 3.0 hrs.

I-L 199 Field Entomology 3.0 hrs.
Undergraduate Programs

The main objective of the Iowa undergraduate program is to prepare students for professional positions in journalism and for other careers in the broad field of mass communication. Such positions vary widely. Among them are newspaper reporting and editing, magazine writing and editing, broadcast journalism, public relations, corporate communication, book publishing, media graphics and design, audiovisual production, media research, and photography. The Iowa program emphasizes the basics of reporting and writing, but professional preparation also requires an introduction to and an understanding of theoretical concepts. All courses strive to integrate practice and theory. The program offers a wide variety of courses.

To preserve high quality of programs the School of Journalism and Mass Communication has a selective admissions program. Thus, students with a declared interest in journalism are classified as "premajors." For admission to full major status, students must fulfill the following pre-major requirements:

- 190/90 Social Scientific Foundations of Communication
- 193/93 Cultural and Historical Foundations of Communication

Students may apply for admission to full major status after they complete these requirements. At least 55 semester hours (or will have that many at the end of the semester during which they apply for admission) and information on deadlines are available at the School of Journalism and Mass Communication.

The major criterion for admission to major status is overall academic performance. An exceptionally strong performance in the required pre-major courses, a statement of purpose prepared by the student, and a statement on any extenuating circumstances. The goal of the program is to admit the most qualified applicants.

The number of students accepted each semester depends on the number of students already in the program and available resources. A grade of D in any journalism course work completed after December 31, 1980 does not count toward fulfilling journalism major requirements.

To ensure that students have a strong liberal arts background to go with their professional preparation, the school limits students to 37 semester hours in the School of Journalism and Mass Communication. Students are required to take course work outside journalism in significant depth, including a concentration of at least 24 semester hours beyond the general education level in one area.

To meet this requirement, journalism majors may complete the major requirements of another department, or create their own area of concentration by selecting related courses in several departments. Premajors are encouraged to consider a second major—which, depending on the outcome of the application for pre-major admission, may be a second major or in place of the journalism major. This work outside journalism should be arranged in consultation with an advisor.

The Iowa program offers undergraduate majors a choice of three sequences of study: news-editorial, mass communication laboratory, and mass communication management. In addition to the required pre-major courses 1930 and 1693, students in all sequences must fulfill the following school requirements:

- 19100 Introduction to Journalism Writing
- 19102 Legal and Ethical Issues in Communication
- 19110 Contemporary Issues and Problems in Mass Communication
- 19300 Research Methods in Journalism

(To be taken in senior's final semester before graduation.)

After completing the 6 semester hours of pre-major courses (1930 and 1693), students will take the 7 semester hours of school-required courses (19100, 19102, and 16919), and courses required in the sequence of their choice; electives also are available. Students must take at least 31 semester hours in journalism but not more than 37.

News-Editorial Sequence

This sequence focuses on news reporting, writing, and editing. Students learn how to gather news and other information from sources and convert it into copy for newspapers and other media. Students also may learn how to edit news stories and write headlines, edit pictures and graphics, and lay out pages for publication. The three courses in the sequence take the student from the basics of the news-gathering process through the standard news story to the depths of feature articles. Along with learning techniques, students are introduced to analytical-critical concepts of the principles and practices of the news profession through discussions and critiques of student work. The news-editorial laboratory course may focus on such topics as public affairs, politics, courts, magazine writing, publication design, and editing. Career possibilities for news-editorial students include work on daily and community newspapers, magazines, public relations publications, and other print media. The sequence is accredited by the Accrediting Council on Education in Journalism and Mass Communication (ACEJMC). These are the required journalism courses:

- Pre-major courses (19100 and 16919) 6 s.h.
- School required courses (19100, 19102, and 16919) 7 s.h.
- 19120 News-Editorial Laboratory (2 sections) 6 s.h.
- Journalism electives 0-3 s.h.
- Total 31 s.h.

Maximum journalism credits allowed toward the B.A. or B.S. major:

Mass Communication Laboratory Sequence

This sequence offers students an opportunity to study theory and proficiency as professional communicators while participating in an advising role that needs communication strategies and media products for solutions. The sequence is designed so that students can combine writing, reporting, production, and management skills within the context of their intellectual, media, and career interests. The Iowa Communications Lab develops professional projects. These projects may include the production of slide-tape shows, brochures, newsletters, audio or video documentaries, or communication campaign plans. Students in the sequence can develop entry-level skills for a variety of career areas including corporate communication, independent media production, public relations, advertising, public information, and broadcast or print journalism. These are the required journalism courses:

- Pre-major courses (19100 and 16919) 6 s.h.
- School required courses (19100, 19102, and 16919) 7 s.h.
- One reporting course, selected from 19120 News Reporting and Writing 3 s.h.
- 1912: Broadcast Journalism 3 s.h.
One production course, selected from:
19:122 Broadcast Journalism Workshop
19:131 Photojournalism I
19:141 Intro to Typography
19:132 Historic Design in Production
19:171 Mass Communication Lab
Journalism electives
9 s.h.
Total required
31 s.h.
Maximum journalism credits allowed toward graduation: 37 s.h.

Mass Communication Inquiry Sequence
This sequence emphasizes the acquisition of knowledge about communication and concentrates on studying communication as a way of comprehending society and human interaction. Students take courses that focus on historical, philosophical, and social scientific modes of understanding. Career possibilities for students in this sequence include public relations, media research and public opinion polling, or other related careers. Many students continue with graduate studies in journalism, mass communication, or other disciplines. These are the required journalism courses:
Pre-major courses (19:90 and 19:91) 6 s.h.
School required courses (19:10, 19:102, and 19:199) 7 s.h.
19:151 Communication Research Methods 3 s.h.
Two or more courses, selected from:
19:150 Visual Communication
19:152 History and Culture of Mass Communication in the United States
19:153 Popular Culture and Mass Communication
19:154 Economic and Technological Issues in Media
19:155 Media and Society
19:156 Comparative Communication Systems
19:157 Third World Development Support
19:158 News-Editorial Proformas
19:159 Electoral Publica and the Mass Media
19:161 Law and the American Media
19:172 Seminar in Mass Communication Research 3 s.h.
Journalism electives
6 s.h.
Total required
31 s.h.

Bachelor of Arts
Requirements for the Bachelor of Arts are:
Four semesters of a foreign language;
Pre-major courses;
School required courses;
Sequence courses;
Fulfillment of the school's second area of concentration requirement in one of two ways:
A full B.A. major in another department;
A 24-semester-hour concentration beyond the general education level;
This concentration should be designed by the student in consultation with his or her adviser.

Bachelor of Science
Requirements for the Bachelor of Science are:
Two semesters of a foreign language;
Pre-major courses;
School required courses;
Sequence courses;
Six semester hours of social or natural science methods courses;
Fulfillment of the school's second area of concentration requirement in one of two ways:
A full B.S. major in a natural or social science;
A 24-semester-hour concentration in the natural or social sciences, beyond general education level. This concentration should be designed by the student in consultation with his or her adviser.

Minor
To meet the requirements for a minor in journalism and mass communication, students must complete at least 15 semester hours in journalism and mass communication. The following courses are strongly recommended:
1996 Social Scientific Foundations of Communication 3 s.h.
1991 Cultural and Historical Foundations of Communication 3 s.h.
1995 Media and Consumers 3 s.h.
The minor is not intended to be sufficient professional preparation for a career in journalism or mass communication. The minor should be regarded only as a cursory introduction to the field.

Transfer Students
All transfer students will be classified initially as premajors. They may apply for major status after earning at least 55 credit hours (including those new from Iowa and other institutions) and completing 10:30 Social Scientific Foundations of Communication and 19:91 Cultural and Historical Foundations of Communication. Neither of these courses will be waivered on the basis of work taken at other institutions. Thus, a transfer student will be a premajor for at least one semester.
The school's policy is to accept journalism transfer credits from another institution for up to, but not more than, 20 percent of the student's total number of credits toward a major in Journalism at Iowa. Other course work taken elsewhere might be applicable toward fulfilling elective and second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be approved by the student's journalism adviser at Iowa.

Graduate Programs
Master of Arts
The School of Journalism and Mass Communication offers a Master of Arts program with three separate emphases: professional journalism, communication and mass communication, or development support. Applications should indicate the emphasis to which they are applying.
Each emphasis requires 30 semester hours of approved course work, the completion of a master's project or thesis, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.
### Professional Journalism Emphasis

This emphasis is intended for students seeking to improve their technical and analytical skills and broaden their understanding of the role and function of mass communication in contemporary society, but who do not plan to engage in a Ph.D. work. There are programs for those who have significant experience in journalism and communication and for those who do not.

**Program requirements for students with no academic or professional experience in journalism and communication:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:220 Master's Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:120 News Reporting and Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>(does not count toward M.A. degree)</td>
<td></td>
</tr>
<tr>
<td>19:232 News Editing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:230 Editorial Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:231 Mass Communication Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>(19:231 option intended for students with special interest in public relations or organizational communication)</td>
<td></td>
</tr>
<tr>
<td>19:220 Master's Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives in the school (minimum)</td>
<td>9 s.h.</td>
</tr>
<tr>
<td>Electives in other courses up to 15 s.h.</td>
<td></td>
</tr>
<tr>
<td>19:220 Master's Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Final examination, last period of enrollment</td>
<td></td>
</tr>
</tbody>
</table>

Students must complete a major professional project (19:229) under the supervision of a faculty member at the end of the last period of enrollment.

### Communication and Mass Communication Emphasis

This emphasis offers a specialization in the study of communication phenomena with special emphasis on theory and methodology. Qualifying 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.

**Program requirements:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:220 Master's Seminar (two semesters)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>19:221 Approaches to the Study of Communication Issues and Concepts</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:240 Communication Research: Historical Approaches</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:241 Communication Research: Behavioral Approaches</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Journalism

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:242 Communication Research: Phenomenological Approaches</td>
<td></td>
</tr>
<tr>
<td>19:243 Communication Research: Legal Issues Approaches</td>
<td></td>
</tr>
<tr>
<td>Electives in journalism and mass communication in other departments</td>
<td>15 s.h.</td>
</tr>
<tr>
<td>19:259 Master's Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Final examination, last period of enrollment</td>
<td></td>
</tr>
</tbody>
</table>

### Development Support Communication

This multidisciplinary emphasis involves the cooperation of the departments of Geography and Political Science. It is intended for students seeking to gain analytical and technical expertise and an understanding of the role and function of mass communication in the process of helping solve Third World development problems. The emphasis offers both nonthesis and thesis tracks.

### Nonthesis Track

The nonthesis track is for students who do not plan to engage in subsequent Ph.D. work. These students must, during the last period of their enrollment, complete a major professional project (19:229) under the supervision of a graduate faculty member. Program requirements for the professional track include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:220 Master's Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>19:307 Third World Development Support</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:230 Comparative Communication Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:231 Mass Communication Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:259 Master's Research (Project)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Geography</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Thesis Track

The thesis track is for students intending to petition for admission to the Ph.D. program upon completion of M.A. work. These students must, during the last period of their enrollment, complete a thesis (19:229) under the supervision of a guidance committee consisting of two graduate faculty members. Program requirements for the philosophical track include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>19:240 Master's Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>One of the following:</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>19:200 Comprehensive Communication Systems</td>
<td></td>
</tr>
<tr>
<td>19:207 Third World Development Support</td>
<td></td>
</tr>
<tr>
<td>19:240 Communication Research: Historical Approaches</td>
<td></td>
</tr>
<tr>
<td>19:241 Communication Research: Behavioral Approaches</td>
<td></td>
</tr>
<tr>
<td>19:259 Master's Research (thesis)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Doctor of Philosophy

The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Such study implies that an understanding of these phenomena cannot arise solely out of narrowly focused analyses of present conditions. Rather, the approaches emphasize philosophical, evaluative, and critical inquiry into the relationships between mass media and society across time and culture. The program's substantive nature is defined by the scholarly interests of its faculty, who turn most frequently to investigations of historical, legal, economic, social, and cross-cultural aspects of communication, both verbal and visual, and is organized in a series of courses and individualized studies.

The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication and 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 context. A more complete description of
the graduate program is available from the school of Journalism and Mass Communication. Students should ask for the Graduate Studies Handbook.

Facilities

The School of Journalism and Mass Communication is housed in the three-story Communications Center. The school has special laboratories for photography, typography, audio, video, typing, and print production, including video display terminals and modern typesetting equipment. Many students use the newspaper and other facilities of the award-winning Iowa State University of Iowa student newspaper, The Daily Iowan. Located, housed in the Communications Center. Special facilities within the Communications Center include the Leslie G. Muller Seminar Rooms and the Merrillbier Presentation Rooms. The school has its own resource center and provides accommodations for offices of the Iowa State University Press Association and the Quill and Scroll Society. A display gallery is available for student and faculty photography and other projects.

Iowa Center for Communication Study

The center encourages and facilitates inquiry into communication problems by faculty members and students. It also publishes the seminal Journal of Communication Inquiry, a student-edited publication that explores different approaches to communication theory and research.

Financial Aid

In addition to research and teaching assistantships for graduate students, more than $12,000 in scholarship and financial aid is available to both undergraduate and graduate students. The school also has a program offering modest financial support for student research projects. Interested persons should write to the school or eligibility information.

Professional Enrichment

Internships, Cooperative Education, Professional Experience

The school has a strong commitment to helping students find learning opportunities outside the classroom. Internships in journalism and public relations are available to students through the University of Iowa Community Education Program. These experiences are selected and monitored to aid the students' professional growth. The school also works with the Business and Liberal Arts Placement Office to provide career guidance and placement. In addition to internships, student-operated and professional media provide opportunities for professional experience.

Special Activities

The school engages in a variety of special activities for the enrichment of students, faculty, and the entire campus. Many speakers visit campus each year as part of John F. Murray Lectureships and the Leslie G. Muller Lecture Series. Campus organizations for students include Kappa Tau Alpha, National Association of Black Journalists (NABJ), Public Relations Student Society of America (PRSSA), Society of Professional Journalists, Sigma Delta Chi (SPJ-SOIC), and Women in Communication Incorporated (WIC). Each year, the Leslie G. Muller Chapter of Kappa Tau Alpha sponsors the election of an outstanding contributor in the field of journalism to the School of Journalism and Mass Communication Hall of Fame.

Semester in London

Each spring semester advanced undergraduates and M.A. professional students have an opportunity to study in England. The program involves a diverse student body who carry a full load of courses, including some offered in conjunction with The City University of London. Courses of both a practical and theoretical nature are offered with courses in specialized topics contributing to the history of mass media available from The City University. In addition, internships may be arranged with London media news.

Courses

All courses listed as 100-level or above require at least junior standing or major status and/or consent of instructor.

1990 Journalism and Mass Communication

Cooperative Education Internship

4.0, 6.0 Credits. Enrollment by the Cooperative Education Office. Offered on a competitive basis by college students. Prerequisites: 3 terms of college level journalism and mass communication courses and any satisfactorily completed undergraduate student is selected and approved by the Cooperative Education Office.

325 Introduction to Broadcasting and Film

3.0 credits. Enrollment by the personal permission of the instructor. Prerequisites: 2 terms of mass media communication courses, a short written statement, and two audio production projects required. Emphasis on technical principles and effectiveness of communication, equipment and learning provided. Same as J230.

326 Introduction to Communication Skills 14.0

4.0 credits. Oral and written communication skills are the heart of our society. This course introduces students to the principles, techniques, and methods for improving communication skills. Prerequisites: enrollment in 1st semester of college. Once this course is completed, they may enroll in 4.0 credits.

501 Newswriting and Editing for a Community Audience

3.0 credits. Introduction to the techniques and methods employed in newswriting and editing. Emphasis on determining the audience for a community newspaper. Includes experience in writing, editing, and design. Prerequisite: 3.0 credits in English composition.

502 Free-Lance Writing

3.0 credits. Preparation of articles and stories for magazines, newspapers, and other periodicals. Emphasis on writing for publication both within the United States and internationally. Prerequisite: 3.0 credits in English composition.

510 Social Science Foundations of Communication

3.0 credits. Preparation of articles and stories for magazines, newspapers, and other periodicals. Emphasis on writing for publication both within the United States and internationally. Prerequisite: 3.0 credits in English composition.

510 Social Science Foundations of Communication

3.0 credits. Preparation of articles and stories for magazines, newspapers, and other periodicals. Emphasis on writing for publication both within the United States and internationally. Prerequisite: 3.0 credits in English composition.

510 Social Science Foundations of Communication

3.0 credits. Preparation of articles and stories for magazines, newspapers, and other periodicals. Emphasis on writing for publication both within the United States and internationally. Prerequisite: 3.0 credits in English composition.

510 Social Science Foundations of Communication

3.0 credits. Preparation of articles and stories for magazines, newspapers, and other periodicals. Emphasis on writing for publication both within the United States and internationally. Prerequisite: 3.0 credits in English composition.

510 Social Science Foundations of Communication

3.0 credits. Preparation of articles and stories for magazines, newspapers, and other periodicals. Emphasis on writing for publication both within the United States and internationally. Prerequisite: 3.0 credits in English composition.

510 Social Science Foundations of Communication

3.0 credits. Preparation of articles and stories for magazines, newspapers, and other periodicals. Emphasis on writing for publication both within the United States and internationally. Prerequisite: 3.0 credits in English composition.

510 Social Science Foundations of Communication

3.0 credits. Preparation of articles and stories for magazines, newspapers, and other periodicals. Emphasis on writing for publication both within the United States and internationally. Prerequisite: 3.0 credits in English composition.

510 Social Science Foundations of Communication

3.0 credits. Preparation of articles and stories for magazines, newspapers, and other periodicals. Emphasis on writing for publication both within the United States and internationally. Prerequisite: 3.0 credits in English composition.
courses in their major department toward the minor.

Courses Approved for LASP Certificate
For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

Anthropology
313:115 Ethnology of South America 3 s.h.
313:115 Ethnology of Mesoamerica 3 s.h.
313:116 Social Anthropology of the Caribbean 3 s.h.
313:117 Latin American Economy and Society 3 s.h.
313:132 Latin American Studies Seminar 3 s.h.
313:120 Anthropology of Mesoamerica 3 s.h.

Art
16:105 Art of Pre-Columbian America 3 s.h.

History
16:111 Colonial Latin America 3 s.h.
16:112 Introduction to Modern Latin America 3 s.h.
16:113 The Mexican Revolution 3 s.h.

Political Science
30:144 Latin American Government 3 s.h.
30:155 Major States of Latin America 3 s.h.
30:153 Inter-American Relations 2-3 s.h.

Portuguese
38:103 Modern Brazilian Fiction I: Short Story 2 s.h.
38:104 Modern Brazilian Fiction II: Novel 2 s.h.
38:105 Brazilian Literature I 3 s.h.
38:106 Brazilian Literature II 3 s.h.
38:107 Nineteenth-Century Brazilian Fiction 3 s.h.
38:114 Culture and Civilization of the Portuguese-Speaking World (Taught in English) 3 s.h.
38:190 Latin American Studies Seminar 3 s.h.

Spanish
30:21 Contemporary Latin American Narrative (Taught in English) 3 s.h.
35:111 Contemporary Spanish American Fiction 3 s.h.
35:112 Spanish American Poetry 3 s.h.
35:113 Spanish American Drama 3 s.h.
35:114 Short Story of Spanish America 3 s.h.
35:170 Literature of the Discovery and Conquest of Spanish America 3 s.h.
35:172 Spanish American Literature of Fantasy 3 s.h.
35:176 Latin American Studies Seminar 3 s.h.

Library and Information Science

Director: Carl Oppen
Professor emeritus: Velma Jean Odhiambo
Associate professors: Carl Oppen, James Rice
Associate professor emeritus: Leonor L. Neuvitte
Assistant professors: Gitter Bialonski, Terrence Wicks, R. Patrick Goudy, Gerald R. Hedges, Kathleen Toussaint
Lecturers: Ethel Bialonski
Adjunct professor: Diego de la Vega
Affiliated faculty: Ray Arant, Dave M. Bend, John R. Bluhman, Paul Knott
Degree offered: M.A.

The School of Library and Information Science offers a program of professional preparation for careers in all types of libraries and information centers—public, school, academic, and special. It seeks to recruit and 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 basic professional preparation in library and information science that reflects the variety and growth of information needs felt by society and individuals;

To engage in research that increases understanding of the variety of information needs and of the actions that can be taken to provide for these needs;

To provide public service through continuing education and counseling and through association and other professional service, so that growth is fostered beyond the student's basic professional program, and so that people have the information services they need.

Institutional Objectives

Upon completion of the program the student will be 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 communication process;

Articulate a philosophy of librarianship that includes an understanding of intellectual freedom and free dissemination of information; a professional attitude toward the librarian's role as mediator between user and information; and 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 sources, 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 richness of life, and the ability to convey that appreciation to others;

Demonstrate mastery of the techniques and procedures of effective information service (that is, the selection, acquisition, organization, and presentation of information);

Identify and use bibliographic techniques and sources of information in a broad range of media formats using 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, setting goals, analyzing problems, implementing programs, and evaluating results;

Critically evaluate research that helps in the advancement of the profession and critique and evaluate the contributions to librarianship made by related disciplines;

Demonstrate a commitment to professional growth.

Research Objectives

To engage in research on library and information science problems that advances both theoretical and practical knowledge.

To give emphasis to research that directly supports the instructional
program of the School of Library and Information Science or that may have special relevance to library service in the state of Iowa.

Public Service Objectives
To offer library and information personnel and library trustees opportunities for continuing education that advances and updates their awareness of current developments in library operations and information services.

To provide consulting services to individuals, libraries, and organizations in order to promote better library and information service for the citizens of Iowa and surrounding areas.

To participate in professional organizations at local, state, regional, and national levels.

Undergraduate Study
Although there is no undergraduate major in library science, juniors and seniors may enroll in the introductory library science courses (100-level). No courses numbered 100 or above may be taken by freshmen or sophomores. No courses numbered 200 or above may be taken by undergraduates.

Graduate Programs
Graduate Students Admitted to Master of Arts Program
Graduate students not yet admitted to the master's program in library and information science may be admitted, upon request to the director, to take one course during the application process. This course may later apply to requirements for the degree. Graduate students in other programs may take a course with the approval of the director and the instructor of the course. This allows access to courses, such as those in subject bibliography, which may be relevant to the student's major program.

Master of Arts
Professional preparation for careers in all types of libraries is provided by the School of the master's program. The school also offers a nondegree graduate program for certification in school librarianship, as well as a certification program leading to the master's degree.

Its graduates hold positions in public, school, academic, and special libraries, serving in such roles as administrators, bibliographers, catalogers, reference specialists, information scientists, and children's librarians.

The Master of Arts degree in library and information science requires 33 semester hours of graduate credit with a minimum grade-point average of 2.5. In addition, the student must pass a comprehensive examination.

Basic Plan of Study
The program consists of a core of required courses basic to all areas of librarianship, and electives. The student's plan of study should be developed carefully in relation to career objectives. All courses to be applied to the 33-semester-hour program must be approved by the adviser.

Required core courses (required of all M.A. candidates)

21:151 Reference
21:152 Description and Organization of Materials I
21:153 Foundations and Collection Development
21:201 Management of Libraries and Information Centers
21:246 Introduction to Information Science Electives

It is strongly recommended that the student's electives include a subject-matter course, a type of library course, and a course in research methods. Elective courses chosen in other University departments must be an integral part of the master's preparation for library and information science. Although many elective courses will provide competent and intelligent support to preparation for librarianship, they cannot be shown to warrant displacement of needed courses in a brief one-year preprofessional program. Electives outside the department must be examined to obtain approval to the School of Library and Information Science, and must not exceed 6 semester hours for students having no previous course work in library science or 9 semester hours for those with such previous courses. Only courses taken for graduate credit may be counted towards the 33-semester-hour requirement.

The thesis option is intended to replace courses in a student's basic preparation. It is available if the student completes the full 33-semester-hour program, but it may count as part of the 33 semester hours if a student comes to the program with extensive course work in library science. In either case, the thesis option may be taken during or after completion of the regular program as long as the student has completed 21:240 Research Methods, or the equivalent. The purpose of the thesis option is twofold: to expand research competence and to provide one means of independent study to a student with extensive preparatory work in library and information science.

A minimum of 9 semester hours of graduate credit may be accepted in transfer as applicable to the master's degree in library and information science at The University of Iowa, provided that:

The work was done at the graduate level in an American Library Association (ALA) accredited program, and was not applied toward a previous degree;

The grade received was "A" or "B".

The director evaluates the elapsed time since the course work was done and determines the level of work to the student's program.

An examination may be required on the subject matter as further evidence of competence in the subject course.

The program requires at least two semesters and one summer of resident study or, in the case of students attending sessions only, a minimum of four semester sessions. Maximum graduate course load is 15 semester hours in regular semesters, 9 semester hours in summer sessions. The maximum course load may not be advisable for those with substantial family or other external responsibilities.

Public Library Work
Public funds support public libraries in order to provide informational, educational, and recreational circulating materials, and a wide range of services for a diversified clientele. Public libraries usually receive the largest part of their funding from local taxes, but often are organized on a regional or statewide cooperative basis. The variety of core services, materials, and organizational structures of public libraries makes the area of librarianship a challenging one.

A major concern of public librarians is to design innovation service programs to reach segments of the population that are not served, to extend to provide a full range of services to all members of the community. Recreation skills often are needed for these services.

Plan of Study
Required core courses
21:151 Reference
21:152 Description and Organization of Materials I
21:153 Foundations and Collection Development
21:201 Management of Libraries and Information Centers
21:246 Introduction to Information Science

Suggested electives
21:240 Research Methods
21:249 Information Storage and Retrieval
21:253 Advanced Reference
21:252 Description and Organization of Materials II
21:282 Practicum in Libraries

Bibliography courses
21:120 Literature for Children I
21:124 History of Books for Young People
21:226 Literature and Storytelling for Children
21:193 Literature for Adolescents
School Library Media Work

The school library media center makes available to students and teachers a wide range of library and instructional materials in a variety of formats. The work of the media specialist includes activities such as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, producing new materials, offering reading guidance, and providing reference services.

To qualify as a school library media specialist in the state of Iowa, students must hold a valid teaching certificate and be appropriately endorsed for school library work. School library media certification requirements, however, vary widely from state to state. The requirements set forth in this program are designed to meet Iowa’s endorsement for school library work. Since the requirements for Iowa endorsements are relatively comprehensive, students who want to pursue school library media work but who do not plan on working in Iowa are encouraged to follow the program listed below. Students who do not hold a valid teaching certificate need to consult with their advisor before pursuing this program.

The program given below is designed to prepare students for a K-12 endorsement, and courses are suggested that will prepare them to work both in elementary and secondary schools. The School Library Media Center Practicum course must be offered during spring semesters. It requires work in a school setting other than the one in which the student may be employed.

Plan of Study

Required core courses: 15 s.h.

School Library Media Work

Other required courses: 5 s.h.

Suggested additional course: 6 s.h.

Additional courses: 12 s.h.

Suggested course: 6 s.h.

Iowa School Library Media Certification, K-12

The school offers approved programs for Iowa state certification in these areas: school librarians for kindergarten through grade 12 (Iowa endorsement 34) and teacher of library services for kindergartners through grade 12 (Iowa endorsement 11). Since these endorsements are currently the only teaching certificate, students must hold a valid Iowa teaching certificate to qualify for these endorsements.

Joint Degree Programs

Joint degree programs between the School of Library and Information Science and other University units are available as their primary goal the integration of the two areas of study, allowing the student to contribute to one discipline the insights and experiences gained in the other.

Through a mechanism by which diploma programs in a joint program in an ad hoc basis, the School of Library and Information Science has established formal programs with the College of Law and the College of Business Administration. The students enrolled in such a joint program work 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 stated above, and since any joint program subject to student, are a matter of advising. For instance, a student who desires a career in a law or business library requires a different sequence of courses from one attempting to study the legal basis of librarianship or the management of the library as a complex organization. Yet another student may choose to seek the benefits a joint program could bring in records management and management information systems.

To enroll in a joint program the student must apply and be accepted by the School of Library and Information Science and the School of Library and Information Science.
and the other unit chosen. Up to 6 semester hours of each study may be applied toward the M.A. in library and information science and up to 9 semester hours toward the M.B.A. or 12 semester hours to the J.D.

In no case can a student receive two degrees with fewer than 60 semester hours of graduate work, and graduate students usually require substantially more than this.

Facilities and Resources

The School of Library and Information Science is located conveniently in the south wing of the University's Main Library, providing facilities for the varied instructional and research activities of the school.

Media Lab and Davis

A media lab contains equipment and space for slide tape production, videocassette recording and editing, filmstrip production, 16mm film previewing, and simple film editing. A darkroom includes equipment for film developing, enlarging, and dry-mounting.

Computer Facilities

An online lab includes three CRT terminals, one student terminal, and a personal computer. This equipment provides local computing, access to the University's Weeg Computing Center, and access to remote programs.

Statewide Reference Service

The school serves as one unit of a state network of academic and public libraries. Students provide back-up reference service to librarians throughout the state, using learned skills to perform bibliographic verifications and to answer reference questions. The service helps students reinforce and integrate classroom instruction and provides reference experience.

Departmental Library

The library science library, one of 12 departmental branches of the Main Library, is located within the school quarters. The collection contains approximately 11,500 volumes and 200 periodical titles related to the study or practice of library and information science. Current contains AV equipment for viewing library materials. Tables, chairs, and easy chairs allow a choice of study seating, and the atmosphere is casual and friendly.

University Libraries

All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than two and one-half million volumes in the Main Library and 12 Departmental Libraries. An average of 60,000-90,000 thousand volumes is added annually. The serials collection is extensive, with more than 30,000 current subscriptions. The third floor of the Main Library houses the government publications, maps, and special collections rooms, as well as an audio book periodical. The location of the School of Library and Information Science on this floor allows quick access to these frequently used resources. Students have access to the second-floor computer terminal linked to the Weeg Computing Center.

Other Libraries

Students have access to a variety of libraries through field trips, practicum experiences, and personal use: the State Historical Society Library in Iowa City, the Iowa City and Cedar Rapids public and school libraries; the Cott, Cornell, and Grinnell college libraries; and the Herbert Hoover Presidential Library in West Branch.

The Iowa City Public Library, located only five blocks from the Main Library, was one of the first public libraries in the nation to convert to a totally computerized catalog. Its service philosophy and contemporary management practices provide students with an innovative public library model.

Other Resources

Weeg Computing Center, located across the street from the Main Library, houses the Learning Resource Center of the College of Education and Computing Center. The resource center consists of the Video Computer Support Lab, Audiovisual Production Lab, and Curriculum Resources Lab. The Current Services Lab contains an extensive collection of book and educational materials for students in preschool through grade 12. It is especially valuable to students interested in school or public library work.

Weeg Computing Center provides instructional and research computing facilities and services for the University community. All University students, staff, and faculty may use the center's computers for University-related research, their preparation, and work. Each graduate student is provided with a small terminal account by the Graduate College.

Faculty Advising

Graduate students are each assigned an advisor upon admission. Students are encouraged to discuss career objectives and problems with other faculty members as well. The enrollment of small numbers of students in the school allows faculty members to get to know students individually and to take an interest in their professional development. All officers are to be applied to the 3-year semester b.v.m. program must be approved by the advisor.

Student Activities

Students have a variety of activities available to and in their academic and professional development, including majors, student groups, and special activities. Student groups provide frequent exposure to contemporary developments in library and information science, as well as an opportunity to meet with practicing librarians from across the state and nation. The Library and Information Science Student Organization (LISOS) is composed of all students accepted into the M.A. program. The Executive Committee of LISOS (ECL) serves as a liaison between students and facultyadministration in matters of common concern, and as a planning group for student activities. ECL sends a representative to faculty meetings.

Placement

The school provides active placement assistance to its graduates by means of bulletin board announcement, seminars on resume-writing and interviewing, and personal counseling. The University's Educational Placement Office maintains a weekly listing of job openings and provides a confidential file service.

Iowa graduates find positions in all types of libraries. The placement distribution for the past three years was: public libraries 27 percent, school libraries 12 percent, academic libraries 44 percent, and special libraries 3 percent. Iowa graduates currently working in libraries in 44 states and nine foreign countries. Strong personal and professional skills and an interpersonal and geographic mobility are important factors in obtaining a position.

Admission

Scholarship requirements for admission to the M.A. program include:

- A baccalaureate degree from an accredited college or university with a minimum grade-point average of 2.5 on a 4.0 scale, and at least 85 semester hours of study in the liberal arts and sciences.
- A combined verbal/quantitative score of 950 on the Graduate Record Examination (GRE) General Test.

Personal qualifications and aptitude for library work are assessed by means of letters of recommendation. Each applicant is expected to interview with the school director, the director's assistant, and interview committee. Arranged interviews are arranged at the last minute.
Linguistics

Chair: Nora E. England
Professors: Andrew Knott, Robert S. Wachal
Associate professors: Gregory N. Carlton, Gregory K. Inmon, Catherine G. Rieck
Assistant professor: William D. Dayan
Degrees offered: B.A., M.A., Ph.D.

Linguistics is the science that studies the organizing principles underlying human language. There are many indicators that such principles exist in language. Children normally learn to use their native language before they enter school, and without much direct instruction. People can speak and understand sentences they have never heard before. All languages have several ways of stating a fact and all have similarities. All languages change through time. Damage to a particular part of the brain may be related to a particular type of linguistic problem, whatever the language. All languages are systems with some unique properties, some universal properties, and some properties shared with all languages that may or may not be historically related.

Linguists do not attempt to learn many languages. Rather, they consider the languages of the world as data to be analyzed by common principles. Linguistics is a science with many laboratories. One linguist's laboratory may consist of a library and pencil and paper. Another may work with acoustical equipment. Others need computers. Some go into seldom-visited places to study, describe, and analyze little-known languages that may be in danger of extinction. Some go into their own communities to study the relationship between language variation and socioeconomic structure, race, or sex. Still others, interested in language change, study ancient languages.

Linguistics is not just about scientific research for its own sake. Linguists may teach English as a foreign language. They may help design school programs that are relevant for Chicano, Black, and Native American students. They may help those who may lose their native language to avoid discrimination against those who are not middle-class while Americans, or they may work with speech clinicians to treat people with linguistic disabilities.

Undergraduate Program

High scores on verbal, quantitative, and aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, it is very important to be able to reason logically and explicitly and to be able to deal with formulas and abstract symbols. Depending on your vocational goals, prospective linguistics students should either consider pursuing their graduate studies at the M.A. level, or linguistics with a professional focus or through the doctorate or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, sociology, speech pathology, psychology, mathematics, computer science, philately, and elementary, secondary, and special education.

The Rockefeller Arts center in linguistics provides the student to do basic language analysis in syntax-semantic (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of advanced electives enable students to tailor the program to their own interests.

The major in linguistics requires 24 semester hours of course work. Majors must take an Introductory Linguistics course (103:101), a course in phonology (103:110), a course in syntax (103:115), and a course in language history. The last requirement can be satisfied by taking 103:120 Historical and Comparative Linguistics, or a course in the history of some language or language family (e.g., 103:125, 103:126, 103:127). A course in another language (e.g., Classical Greek, Latin, Sanskrit, Old English) Remaining electives are chosen with the undergraduate advisor.

Graduate Programs

Engaging in all graduate programs is on the thesis and research. Students interested in women's studies may also take advantage of courses in applied linguistics and other fields either in connection with doctoral work or as an option of the M.A. program.

Master of Arts

All students take a required set of core courses and must take comprehensive examinations in phonology, syntax and write and defend a thesis. The required core courses are 103:110 Articulatory and Acoustic Phonetics, 103:111 Syntactic Analysis, 103:122 Phonological Analysis and Theory, 103:120 Historical and Comparative Linguistics, 103:123 Syntactic Theory, and 103:123 Linguistic Field Methods or an approved alternative.

Students who write a thesis take at least 6 semester hours of elective courses, exclusive of thesis hours, and receive up to 6 semester hours of thesis work and up to at least 9 semester hours of thesis hours. The thesis may be designed in advance by the student (subject to departmental approval) or may be one of a set of predetermined options (for example, teaching English as a foreign language). All electives must be approved by the student's advisor for acceptance. (See also the departmental Information.) Students should take at least 30 semester hours of course work and write a thesis, or at least 30 semester hours of course work and take the comprehensive examination. All students must have a minimum of 30 semester hours of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy

The highly selective Ph.D. program provides students with a strong foundation in theoretical linguistics and develops the skills necessary for exploring the close relationship between linguistics and related disciplines. The core requirement for the program includes two upper-level syntax courses (e.g., 103:125: Syntactic Theory and either 103:212 Advanced Syntactic Theory or 103:213 Advanced Syntax Analysis), two upper-level phonology courses (e.g., 103:112 Phonological Theory and 103:211 Advanced Phonetics), and at least two semesters, for a total of 18 semester hours. An approved 18-semester-hour specialty area is also required, and students must achieve a grade of B or better in at least two foreign languages, as specified by departmental regulations.

Comprehensive examinations cover phonological theory, syntactic theory, theory of language change (historical linguistics and sociolinguistics), and the specific field that interests the dissertation and three of the preceding residence units in the program. All candidates are required to gain supervised experience in teaching and research.

Financial Aid

Teaching assistantships and research assistantships are available to qualified graduate students. Applications are due on the March 1 for the following academic year. Students applying concurrently for financial aid and admission should submit their Graduate Record Examination (GRE). Aptitude Test scores and three letters of recommendation are required.
Division of Mathematical Sciences

Degree offers: B.A., B.S., M.S., Ph.D.

Undergraduate Programs

Bachelor of Arts

Students must take at least seven additional approved courses from the division beyond one year of calculus (either 22M-25-26 Calculus I-II or 22M-05-06 Engineering Calculus I-II or 22M-05-06-46 Accelerated Calculus I-II). The courses 22M-27 Introduction to Linear Algebra and 22M-28 Calculus III are strongly recommended.

Each of the seven additional courses must carry at least 3 semester hours of credit. Except for students electing the applied mathematics science option or those seeking a secondary teaching certificate, at least two of the seven courses must be chosen from the following list:

22M 116 Operating Systems and Concurrent Programming
22M 125 Advanced Computer Organization and Architecture

22C 123 Programming Language Foundations
22C 125 Data Abstractions, Types, and Structures
22C 135 Introduction to Computation Theory
22C 145 Artificial Intelligence I
22C 153 Design and Analysis of Algorithms I
22C 167 Theory of Graphs
Any mathematics course numbered 22M 109 or above.
22S 133 Introduction to Probability
22S 154 Introduction to Mathematical Statistics
22S 164 Introduction to Discrete Probability Models
22S 167 Introduction to Stochastic Processes
22S 181 Actuarial Theory I
22S 182 Actuarial Theory II

Some of the above courses require extensive prerequisites; the student should consider these in planning his or her program.

Students should consult the divisional office concerning courses that may be applied toward the seven-course requirement. Students who complete the requirements for a secondary teaching certificate may take any two 100-level mathematical sciences division courses among their seven required courses in mathematics. See further requirements below under "Mathematics Education.

Bachelor of Science

In addition to the requirements outlined above for the Bachelor of Arts degree, the Bachelor of Science degree requires two approved courses from the division, each carrying at least 3 semester hours of credit. The programs described below need not be followed exactly; rather, it is expected that the student and his or her advisor will work out a program reflecting the student's interests. The requirements are flexible enough to accommodate changes in students' interests.

Suggested Programs

General

Unless a student has a strong interest in a special area in mathematics, a general program is suggested. This type of program should include 22C 16 Introduction to Programming with Pascal, preferably along with calculus during the freshman year. The program also should include a course such as 22M 06 Elements of Group Theory, 22M 05 Fundamental Properties of Spaces and Functions, or 22M 145 Introduction to Set Theory, and it should include at least a sememster's work in probability and statistics.

The student should take additional work, in particular the required 100-level courses, in the area of mathematical sciences that most interests the student. Students contemplating employment in government or industry upon completion of the bachelor's degree should consider 22C 17 Programming Techniques and Data Structures and courses in numerical analysis, applied statistics, and operations research.

Actuarial Science

The student who plans to enter the actuarial profession should be guided in course selection by the program of education and examinations carried on by the principal actuarial organizations.

Following a sequence in calculus and linear algebra (22M-25-26 Calculus I-II or 22M-05-06-46 Accelerated Calculus I-II), 22M 27 Introduction to Linear Algebra, and 22M 28 Calculus III, the student should take 22S 153 Introduction to Probability, 22S 154 Introduction to Mathematical Statistics, 22S 164 Actuarial Principles of Life Insurance, 22S 169-180 Actuarial Theory I-II, 22S 177 Numerical Analysis for Actuaries, and a course in operations research.

Additional courses of direct professional interest to actuaries include 22S 193 Demography and Life Table Construction, 22S 184 Risk Theory, and 22S 185 Theory of Pension Funding.

Students are encouraged to take at least one course in computer science and a substantial program of courses from the College of Business Administration. If a student in unable to complete such a program as an undergraduate, he or she may be advised to take a year of graduate work.

Applied Mathematics

All students interested in applied mathematics should take the sequence 22M 27-28 Calculus I-II or 22M 05-06-46 Accelerated Calculus I-II, 22M 27 Introduction to Linear Algebra, and 22M 28 Calculus III or the engineering mathematics sequence.


Other general courses that may be of interest are 22M 50 Elements of Group Theory, 22M 05 Fundamental Properties of Spaces and Functions, 22M 100-110 Advanced Calculus I-II, 22M 114 Introduction to Analysis II, 22M 126 Elementary Theory of Numbers, and 22M 127 Matrix Theory.

Students in applied mathematics should be familiar with computer programming.
(22C.16) Introduction to Programming with Pascal and 22C.17 Programming Techniques and Data Structures (to be taken early along with calculus) and with the basic ideas of probability and statistics, the courses 22S.153 Introduction to Probability and 22S.154 Introduction to Mathematical Statistics or 22S.130 Probability and Statistics are appropriate.

To acquire an understanding of how mathematics is used in other areas, students should take a set of courses that involve mathematics in a significant way, outside the Division of Mathematical Sciences. Students who plan to do graduate work in applied mathematics should take 22M.115 Introduction to Analysis I and 22M.116 Introduction to Analysis II.

Mathematics Education

Mathematics courses required for students in mathematics education are 22M.25-26 Calculus I & II or 22M.40-41 Accelerated Calculus I & II, 22M.27 Introduction to Linear Algebra, 22M.50 Elements of Group Theory, 22M.55 Fundamental Properties of Spaces and Functions, and 22M.70 Foundations of Geometry. The student may substitute a 100-level course in the same subject area for any of these courses. All of these courses (except for 22M.70) must be satisfied before taking 73.155 Methods. Mathematics, a course required for teaching certification in mathematics (see the "College of Education" section of the Catalog for certification requirements).

At least two mathematics (not crosslisted with Education) in the Division of Mathematical Sciences must be completed, at least one statistics course is strongly recommended. Some appealing 100-level courses are 22S.11 Foundations of Set Theory, 22M.124 Foundations of Logic, 22M.126 Introduction to Non-Euclidean Geometry, 22M.127 History of Mathematics, 22M.132 Elements of Topology, 22M.142 General Topology, 22M.115-116 Introduction to Analysis I-II, 22M.125-126 Abstract Algebra I-II, 22M.130 Probability and Statistics, 22M.127 Methods of Statistical Inference, and/or the sequence 22S.150 Introduction to Probability and 22S.154 Introduction to Mathematical Statistics. Students in mathematics education need not have proficiency in one computer programming language; this requirement usually is not by completing 22C.16 Introduction to Programming with Pascal.

Pure Mathematics

Students interested in this area of mathematics should take two of the same sequence: 22M.130-131, Abstract Algebra I-II; 22M.115-116, Introduction to Analysis I-II; 22M.123 Foundations of Set Theory; 22M.124 Foundations of Logic, and 22M.130 Elementary Topology, 22M.132 General Topology, and at least two explorers of course work outside these areas, for example, 22C.16 Introduction to Programming with Pascal, 22C.17 Programming Techniques and Data Structures, 22M.100 Introduction to Ordinary Differential Equations, 22M.118 Complex Variables, 22S.153 Introduction to Probability, or 22S.154 Introduction to Mathematical Statistics.

Probability and Statistics

The basis for this program is the calculus sequence 22M.25-26 Calculus I-II or 22M.45-46 Accelerated Calculus I & II and 22M.27 Introduction to Linear Algebra, or 22M.123-124 Engineering Calculus I-II and 22M.42 Vector Calculus. These courses should be followed by one of the three sequences 22S.153 Introduction to Probability and 22S.154 Introduction to Mathematical Statistics; 22S.153 Introduction to Probability and 22S.157 Introduction to Stochastic Processes; or 22S.153 Probability and Statistics and 22S.158 Analysis and Design of Experiments I or 22S.152 Regression Analysis.

Students also should select one or two courses in computer science from 22C.16 Introduction to Programming with Pascal, 22C.17 Programming Techniques and Data Structures, or 22C.18 Computer Organization and Assembly Language Programming and one or two courses in mathematical analysis from 22M.55 Fundamental Properties of Spaces and Functions, 22M.100 Classical Analysis I and 22M.115 (Introduction to Analysis). Substantial work in one of the biological, social, physical, or engineering sciences also is highly recommended.

Further courses in probability and statistics may be selected from courses in the Department of Statistics and Actuarial Science numbered 100 and above, excluding 22S.151, 22S.152, 22S.155, and 22S.156.


Applied Mathematical Sciences Option

This option is designed to reflect the increasing diversification of applications of mathematics and statistics to the social, biological, and physical sciences, and to management, business, ecology, linguistics, and engineering.

The student electing this option must include the following among the seven courses he or she takes beyond the last year of calculus: 22M.27 Introduction to Linear Algebra;

At least three Division of Mathematical Sciences courses numbered 22M.60 or above (excluding 22M.64-61 and including at least one course numbered 190 or above) or 22S.105 or above; and

At least three additional quantitative courses from one department outside the division, or, at the adviser's discretion, two closely related departments in addition to the above, the Bachelor of Science degree requires two one-semester courses from the division, each carrying at least 2 semester hours of credit.

A student taking this option must include an area of concentration in his or her program, and must acquire some experience in the use of the computer. Students electing this option are assigned specially-designated program advisers.

Transfer Students

Undergraduate transfer students in mathematics must earn at least 9 semester hours of credit in Division of Mathematical Sciences courses beyond the first year of calculus or 22C.16 Introduction to Programming with Pascal.

Minor

The minor requires a minimum of 15 semester hours of credit. At least 12 of these semester hours must be earned in upper level course work at the University of Iowa. All students are required to take a year of calculus. The courses designated as upper level for the purposes of satisfying the requirements for a minor in the Division of Mathematical Sciences are those that have been approved as satisfying the seven-semester-hour requirement for a minor in the Division of Mathematical Sciences. Students majoring in computer science or statistics and actuarial science may not use these courses to satisfy the minor-field requirement. Further information on unapproved courses can be obtained from the divisional offices.

Double Majors

See the divisional offices for information on double majors within the division.

M.B.A. Preparation

An undergraduate student majoring in mathematics who wants to earn a Master of Business Administration in one year of graduate study should consult with his or her adviser and write the associate dean of the College of Business Administration prior to the senior year concerning business courses that should be included in the undergraduate program.

Applied Mathematical Sciences

Chair: Herbert W. Hackett
Faculty: Ronald E. Althoen (Mathematics),
Applied mathematical scientists formulate scientific concepts and problems in mathematical terms; solve the resultant mathematical problems; discuss, interpret, and evaluate the solutions; explore ideas far and areas of mathematical application; and develop mathematical theories in new areas. Career opportunities include faculty positions in colleges and universities, research positions in industrial and governmental laboratories, and professional consulting positions.

The Program in Applied Mathematical Sciences at The University of Iowa is an autonomous, broad-based interdisciplinary program leading to the Doctor of Philosophy degree. The program seeks to help the student achieve a command of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) and obtain a basic knowledge of at least one science (behavioral, biological, engineering, medical, physical, or social). The program is flexible so that a student can concentrate on applied mathematics such as differential equations, numerical analysis, or on other applicable techniques in mathematical statistics, or computer science.

Applicants are expected to have a strong background in one or more of the mathematical sciences, together with a desire to apply a mathematical science to relevant scientific problems in another science. Students may enter with either a bachelor's or master's degree.

The faculty members associated with the program assist each student in planning a course of study that is consistent with the student's background, interests, and goals. They also assist each student in finding a suitable thesis problem and supervisor for the thesis selected by the student.

The student's program is designed to develop expertise in methods of application of mathematical science, to build a good foundation in related topics of theoretical mathematics, statistics, or computer science, and to provide sufficient knowledge in a particular science so that the student can use mathematical science techniques in that science. The study plan can be arranged so that a student's degree is obtained from a science or a mathematical science department after completion of part of the plan.

The Ph.D. comprehensive examinations cover three areas: theoretical foundations in the mathematical science, methods of application, and the chosen scientific area. As an objective of the program is to have each student's dissertation research include many of the activities of an applied mathematical scientist. For example, this could involve formulation of a model, qualitative analysis of the model, and interpretation of the results. Research and teaching assistantships are available to qualified candidates. Support for students as research assistants is available during the summer. Applications for fall semester admission and for financial support should be received by March 1. For application forms and further information about the academic program, write to the Chair, Program in Applied Mathematical Sciences, The University of Iowa, Iowa City, Iowa 52242.

**Courses**

212.097 Seminar in Applied Mathematical Sciences
Preparation of course instructions.
212.099 Reading and Research
Preparation of seminar at instructor.

**Computer Science**

Chair Arthur C. Flagg
Professor: Donald A. Allon, Donald L. Eppley, Arthur C. Flagg
Associate professors: Robert J. Barlow, Steven C. Kim, Douglas W. Wakefield
Lecturers: William F. Doster
Degrees offered: B.A., B.S., M.S., Ph.D.

**Undergraduate Programs**

Pre-Computer Science
Entering students who want to major in a computer science major may take the following computer science courses.

212.17 Programming Techniques and Data Structures
4.0
212.18 Computer Organization and Assembly Language Programming
4.0
212.19 Discrete Structures
3.0
212.21 Algorithms and Data Structures
3.0
212.23 Programming Language Concepts
3.0
212.31 Digital Systems and Computer Systems
3.0
212.33 Introduction to Systems Software
3.0
Total
39.0

Bachelor of Science
For the B.S. degree, students must complete the computer science requirements for the B.A. degree plus two additional one-semester courses (each having at least 2 semester hours of credit) from the list below. At least one course must be from the Department of Computer Science.

**Courses**

212.11 Computer Graphics
3.0
212.25 Elementary Numerical Analysis
3.0
212.36 Tracts in Computer Science
3.0
212.39 Internship in Computer Science (if repeated, credit as only one)
22C:155 Software Engineering
22C:166 Operating Systems and Concurrent Programming
22C:122 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:123 Data: Abstractions, Types, and Structures
22C:127 Introduction to Compiler Construction
22C:125 Introduction to Computation
22C:144 Database Management Systems
22C:145 Artificial Intelligence
22C:146 Computer Vision and Robotics
22C:153 Design and Analysis of Algorithms I
22C:154 Design and Analysis of Algorithms II
22C:168 Computer Communications
22C:198 Individual Programming Projects
Mathematics courses
22M:99 Elements of Group Theory
22M:53 Fundamental Properties of Spaces and Functions
22M:99A Dissections of Geometry
Any 100-level course except 22M:107
Statistics courses
22S:59 Probability and Statistics for the Engineering and Physical Sciences
22S:150 Probability and Statistics
22S:153 Introduction to Probability
Any course numbered above 22S:153
These courses cannot be taken pass-no-pass. Students with certain elective programs may petition for additional courses to be accepted for this requirement.
Honors
Any University of Iowa student with a cumulative grade-point average of 3.2 or better may join the College of Liberal Arts and Sciences Honors Program. Interested students should contact the Honors Program office in the 3630 Old Main. To graduate with honors, students must complete between 5 and 6 semester hours of 22C:99 Honors in Computer Science and submit acceptable honors thesis. To take 22C:99, students must have the consent of a Computer Science faculty member. The faculty member must know the nature of the intended project for the honors thesis, a plan or timetable for the work, and the nature of the thesis itself. Students are responsible for finding a faculty member willing to supervise their honors project.
See the Computer Science Undergraduate Handbook for more details.
Electives
For the B.A. or B.S. degree, students must take 11 to 20 semester hours of electives in a field with potential computing application, such as business, engineering, physics, or other field in which students plan to apply the computer science degree. These courses must be approved by the student's computer science advisor beforehand and cannot be taken pass-no-pass. They also may be used to satisfy the college electives requirement.
Minor
To earn a minor in computer science, a student must complete a minimum of 15 semester hours, 12 of which must be taken in advanced University of Iowa course work. Students must complete 22C:116 Introduction to Programming with Pascal, 22C:117: Programming Techniques and Data Structures, 22C:118 Computer Organization and Assembly Language Programming, and two more courses from among: 22C:6 Programming with O'RiOL, and/or any computer science courses numbered higher than 22C:18, except those numbered 22C:100 to 22C:109. For purposes of the minor only, the courses listed here, other than 22C:16, are considered upper-level. These courses may not be taken pass-no-pass. Engineering majors may not use courses required in the engineering curriculum for the minor in computer science.
Graduate Programs
Master of Science
Candidates for the M.S. degree in computer science must have completed the following courses or acquired equivalent proficiency:
22C:116 Operating Systems and Concurrent Programming
3 s.h.
22C:122 Advanced Computer Organization and Architecture
3 s.h.
22C:123 Programming Language Foundations
1 s.h.
22C:135 Introduction to Computation Theory
3 s.h.
A 22C:122, 22C:116 course
3 s.h.
Three additional graduate-level 22C courses
9 s.h.
Approved courses outside of computer science
6 s.h.
Total
20 s.h.
Outside courses must be selected to support the student's career objectives and must be approved by the student's advisor. The courses must broaden a student's background through study at a new area or extend a student's earlier work outside of computer science.
Computer science courses should be selected according to the student's special area interests but also should provide a broad range of experience and competence in computer science. In particular, some experience with projects involving extensive programming should be included. M.S. candidates may elect to write a thesis, and with their advisor's consent may apply up to 8 semester hours of thesis credit toward the minimum total of 30 semester hours of credit required for the M.S. degree. The M.S. final examination consists of either an oral defense of the thesis or a written examination that assesses completion of 22C:116 Operating Systems and Concurrent Programming, 22C:122 Advanced Computer Organization and Architecture, 22C:123 Programming Language Foundations, and 22C:135 Introduction to Computation Theory. The written examination attempts to confront the student with four major areas as well as the major topics in the individual courses. Students should consult the Computer Science Graduate Handbook for further information.
Applicants for admission to the M.S. program in computer science usually are required to have background equivalent to a B.A. or B.S. in computer science. In special cases, a student lacking one or more of the undergraduate requirements may be admitted to the graduate program. In such cases the student is required to complete these courses prior to admission to graduate courses.
Doctor of Philosophy
Doctoral students are expected to complete 30 to 36 semester hours of graduate work, including a thesis. The student must have a master's degree when beginning the Ph.D. program, and need not acquire one. Course requirements or equivalent proficiency for the doctorate include:
22C:116 Operating Systems and Concurrent Programming
3 s.h.
22C:122 Advanced Computer Organization and Architecture
3 s.h.
22C:123 Programming Language Foundations
3 s.h.
22C:125 Data Abstractions, Types, and Structures
3 s.h.
22C:137 Introduction to Compiler Construction
3 s.h.
22C:136 Introduction to Computation Theory
3 s.h.
22C:144 Database Management System
3 s.h.
22C:145 Artificial Intelligence
3 s.h.
22C:153 Design and Analysis of Algorithms
3 s.h.
Students also must complete at least 18 semester hours of 400-level computer science course work in addition to 22C:299 Research and Dissertation.
In addition to the course work in computer science, students must complete at least three courses with grades of A or B in at least three of these areas:
Algorithms
Analysis
Logic
Set theory
Operations research
Statistical inference and probability
Numerical analysis
At least one course in the outside area must be at the 400 level, except in statistics and probability, where the advanced course may be at the 100 level.
After students pass the qualifying examination, they select a faculty adviser to direct their research. Students and their advisers select the dissertation committee.
In consultation with the adviser and dissertation committee, an athlete prepares a plan of study and specifications for a

specifications, data abstraction facilities in modern
programming languages, memory and associated
efficiency techniques. grade of C or higher.

3C101 Introduction to Compiler
Construction 3 s.h.
Syntax and semantic analysis of source and target
languages, techniques for implementation, general
structural concepts and programming languages,
special language concepts—abstract syntax
representation, source level debugging, runtime
environment, interpreter generation, compiler
construction, compiler design, compiler
optimization, compiler management systems,
local, global, large, large programming language
systems. Prerequisites: grade of C or higher in
3C103, 3C112, and 3C113.

3C103 Introduction to Computer Theory 3 s.h.
Finite automata, regular and non-regular
computations, context free grammars and their
parsing, push-down, linear bounded and Turing
computation, relationships between formal
computing models and acceptability. Prerequisite:
grade of C or higher in 3C101, 3C112, and 3C113.

3C112 Database Management Systems 3 s.h.
Database management system architecture and
tools, entity-relationship model, storage
design, database design, transaction, remote
access, database security, database transactions,
specialized data management systems, techniques
using a database management system, topics from
query optimization, concurrency, recovery, security,
distributed databases. Prerequisites: grade of C or
higher in 3C103.

3C117 Artificial Intelligence I 3 s.h.
Basic concepts, problem-solving methods, state
space representation, heuristic search, problem
minimization techniques, search algorithms, game
playing, knowledge representations, overview of
effective programs and language processing
systems, overview of current research trends.
Prerequisite: grade of C or higher in 3C103.

3C118 Computing and Robotics 3 s.h.
Visual search techniques, computer vision
tools, modeling and simulation, robot model-based
scene analysis, robotics–fiction–literature–art,
robotic applications, artificial intelligence and
smart robotic systems. Prerequisite: grade of C or
higher in 3C103.

3C123 Design and Analysis of Algorithms I 3 s.h.
Computational methods, algorithmic
comparisons, recursion relations, divide-and-conquer,
the greedy strategy, dynamic programming, backtracking
methods, search techniques. Prerequisite: grade of C or
higher in 3C103.

3C167 Theory of Graphs 3 s.h.
Graph theory, including finite and
transfinite graphs, covering, matching, general
graph theory, basic graph algorithms for
graphs, rate and path, graph theory, algorithms
for graph theory, and graph algorithms. Prerequisite:
grade of A or higher in 3C103.

3C178 Computer Communications 3 s.h.
Computer networks, data and physical
networks, data link layer, errors and errors
on medium access protocols, broadband
networking, quality of service, computer
security and policy, Prerequisite: student
enrollment in computer engineering or computer
science. Same as SE135.

3C199 Research for Undergraduates 3 s.h.
For Ph.D. candidates in computer science, study
of advanced topics approved by advisor. Prerequisite:
consent of advisor.

3C200 Seminar on Vertebrate and Invertebrate 3 s.h.
Topics in functional and organismal evolution,
computer systems, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
organismal evolution, computer science
applications, computer science application.
including at least 24 semester hours in the following:

Any Department of Mathematics course numbered 100 or above
22C:122 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:135 Introduction to Computation Theory
22C:145 Artificial Intelligence I
Any 200-level course in computer science
22S:153 Introduction to Probability or
22S:154 Introduction to Mathematical Statistics or
22S:167 Introduction to Stochastic Processes or
Any statistics course having any of these three as a prerequisite

Program II

This program is designed for secondary school teachers. The requirements are the same as those in Program I or Program III, except that two mathematics education courses are required. Mathematics courses numbered 100 or above may be used to satisfy the 24-semester-hour requirement.

Program III

This program is oriented toward applied mathematics. Students must take those required courses:
22M:144 Introduction to Partial Differential Equations
22M:142 Intermediate Differential Equations
22M:140 Continuous Mathematical Models or
22M:151 Discrete Mathematics Models
22M:174 Optimization Techniques
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory
22M:171 Numerical Analysis: Differential Equations and Linear Algebra

Students are required to take two comprehensive examinations: one covering the content of 22M:170, 22M:171, and 22M:174; the other covering the content of 22M:144 and 22S:142.

Two additional courses from the following:
22M:118 Complex Variables
22M:127 Matrix Theory
22M:140 Continuum Mathematical Models
22M:151 Discrete Mathematical Models
22M:152 Theory of Graphs
22C:116 Operating Systems and Concurrent Programming
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 experience equivalent to the required courses may substitute electives.

Program IV

This program is designed for nondepartmental students working toward a Ph.D. in another area requiring mathematical knowledge. The program has no required courses. Course distribution requirements are the same as those for Program I.

The student in program IV is considered to have passed the comprehensive examination for the master's degree in mathematics if he or she has maintained a minimum grade-point average of 3.0 in all mathematics courses taken for the master's degree in mathematics and has successfully completed the comprehensive Ph.D. examination in the chosen area.

A student in program IV is assigned a mathematics advisor who works with the student and the student's major advisor to plan an appropriate curriculum for the student's degree in mathematics.

Admission

To be admitted to an M.S. degree program in mathematics, a student must have completed work in an undergraduate mathematics program equivalent to the one offered by the Division of Mathematical Sciences. A student whose preparation does not meet this requirement may be required to take additional courses to cover the deficiency.

Doctor of Philosophy

Most of the recent graduates of the Ph.D. program have found positions teaching in universities or colleges.

There is ample opportunity for Ph.D. candidates to take courses in applicable mathematics, both in the mathematics department and in other departments in the division. There is no formal dissertation policy during the first three years.

The requirements for the Ph.D. in mathematics include 72 quarter hours of graduate credit and at least three years of graduate residence, including at least one at The University of Iowa. Each graduate student in mathematics is expected to gain experience in the University in the oral communication of mathematics; this requirement is usually fulfilled by 22S:141 teaching or seminar lecturing.

The comprehensive qualifying examination for the Ph.D. in mathematics covers three of these areas: algebra, analysis, logic and foundations, and topology. The student selects the three areas on which he or she wishes to be examined.

At least 18 semester hours of graduate coursework must be earned in courses numbered beyond the comprehensive exam. A list of currently approved courses is available from the mathematics office.

The candidate must write a thesis and pass a final examination.

The candidate is required to demonstrate reading proficiency in French, German, or Russian other than by passing a language test administered by the appropriate foreign language department or otherwise approved by the Mathematics Department or by earning a grade of "B" or better in the second semester of a sequence offered by the appropriate foreign language department. This demonstration must take place after the student has enrolled in graduate school.

For information about the Ph.D. program in mathematics education, consult the Honors and Interns Studies in Education, available from the College of Education.

The Department of Mathematics also cooperates in interdisciplinary doctoral programs with the Program in Applied Mathematical Sciences.

Courses

Undergraduate: Lower Division

These courses are not open to graduate students except by special arrangement with the department chair.

22N:100 Cooperative Education Internship 1-4 h.

22N:101 Basic Algebra I 3 h.

Permits, rate and proportion, algebraic expressions and operations, angle products, linear and quadratic equations, exponents, and logarithms. Only 22N:101 may be counted toward graduation. Credit will not count toward graduation for students who enroll at the UI for the first time after July 1965.

22N:102 Basic Algebra II 3 h.

Algebraic techniques, equations and inequalities, functions and graphs, exponential and logarithmic functions, systems of equations and inequalities. May be used for partial satisfaction of the mathematics General Education Requirement. Course credit will not count toward graduation for students who enroll at the UI for the first time after July 1965. Prerequisite: 22N:101 or one year of high school algebra

22N:105 Basic Geometry 3 h.

Angles, triangles, polygons, areas, Pythagorean theorem, loci, coordinate geometry. May be used for partial satisfaction of the mathematics General Education Requirement. Course credit will not count toward graduation for students who enroll at the UI for the first time after July 1967.

22N:110 Calculus 6 h.

Introduction to higher, single T-thyory, linear equations and inequalities, trigonometric functions, exponential and logarithmic functions, plane analytic geometry, differential and integral calculus, probability. Prerequisite: course in high school algebra or 22N:102.

22N:111 Brief Calculus 3 h.

Introduction to higher, single variable calculus, elementary numerical methods and elementary differential equations with applications. Prerequisite: two years of high school mathematics or 22N:102 or equivalent, or 22N:101.

22N:112 Introduction to Linear Algebra 3 h.

Vector spaces, linear transformations, determinants, eigenvalues and eigenvectors, inner products, orthogonality, linear independence, and matrix theory. Prerequisite: 22N:111 or equivalent.
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 thesis 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 a final defense of the thesis, although it may be based on a single written examination over the topics covered in the candidate’s program of study.

Students who choose to earn the M.S. degree with thesis must keep up to 6 semester hours of credit for thesis preparation. Specific course requirements for the M.S. programs are given below. The minimum grade-point average required for each of these programs is 2.75.

Actuarial Science With or Without Thesis
225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics
225:150 Methods of Statistical Inference
225:125 Actuarial Principles of Life
225:180-182 Actuarial Theory I-III
225:177 Numerical Analysis for Actuaries

At least three courses from:
225:183 Demography and Life Table Construction
225:184 Risk Theory
225:185 Theory of Pension Funding

An approved course in operations research

Students who have had the equivalent of 225:125-154 at another institute may waive the requirement only if they have passed part two of the Examination of the Society of Actuaries.

Theoretical Statistics and Probability With or Without Thesis
225:115 Introduction to Analysis I
225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics
225:251 Introduction to Stochastic Processes
225:261 Theory of Statistics I

At least two of these:
225:259 Introduction to Discrete Probability Models
225:272 Topics in Statistics
225:202 Theory of Statistics II
225:209 Introduction to the Theory of
Nonparametric Statistics
225:265-266 Advanced Inference I-III
225:255 Linear Models
225:256 Multivariate Analysis
225:264-265 Theory of Probability I-III

Applied Statistics Without Thesis
225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics
225:156 Analysis and Design of Experiments I
225:152 Regression Analysis
225:173 Data Analysis

At least two of the following:
225:156 Applied Time Series Analysis
225:151 Applications of Multivariate Statistical Techniques
225:150 Analysis and Design of Experiments I

The remainder of the program consists of at least two additional courses numbered 225:135 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 typical thesis is a statistical presentation of the results of a meaningful research project in another field, or a study of the characteristics of a new statistical method. It generally requires 3 semester
hours of 225:191. Individual study for two semester.

Doctor of Philosophy
To satisfy the course requirements for a Ph.D. in statistics, students must successfully complete:
225:211 Analysis II
225:212 Regression Analysis
225:198 Analysis and Design of Experiments I
225:217 Introduction to Stochastic Processes
225:172 Data Analysis
225:225 Advanced Inference
225:215 Linear Models
225:264 Theory of Probability I
At least 2 semester hours of any combination of the following:
225:291 Seminar Mathematics Statistics
225:293 Seminar: Probability
At least one of the following:
225:156 Applied Time Series Analysis
225:141 Application of Multivariate Statistical Techniques
225:148 Analysis and Design of Experiments II
At least one of the following:
225:220 Analysis of Categorical Data
225:220 Introduction to the Theory of Nonparametric Statistics
And at least two of the following:
225:255 Advanced Inference II
225:265 Theory of Probability II
Students must achieve at least a 3.5 grade-point average on these courses to satisfy the above requirements.

Well-prepared students entering with a B.S. degree require three years of course work to complete the doctoral programs: they take 225:201, 225:203, and 225:207 in their first year, and then 225:230, 225:203, and 225:207 in their second year, and 225:172 in their third year. Those with complete course work in the above requirements may take 225:205, 225:215, and 225:216 in any order, but an extra semester of course work is required of them. Examples of complete course work are available from the department.

In addition to the above requirements, each semester graduate students are registered for 6 or more semester hours, their registration is complete at least one course of at least 2 semester hours offered by the Department of Statistics and Actuarial Science, other than 225:191 Individual Study. 225:177 Readings in Statistics and/or Actuarial Science, or 225:179 Independent Research.

During the graduate programs, students may take course work or seminars in other departments to achieve certain auxiliary goals of the doctoral degree in statistics 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 professional contacts with foreign statisticians.

Students are required to include in their programs a component that involves experience in either teaching or statistical consulting.

Students who expect to request financial assistance for their third year should take the qualifying examination no later than the spring semester of their second year. The qualifying examination covers introductory probability, mathematical statistics, and regression analysis. These topics generally are covered in 225:215, 225:172, 225:207. Study guides are available from the department. Students who are unsuccessful in their first attempt may repeat the qualifying examination once.

Students take a comprehensive examination after completing most of the course work in their approved plan of study, typically during the third year. The comprehensive examination consists of a written core examination on statistical inference, linear models, and probability. These topics are generally covered in 225:201, 225:215, 225:207, and 225:216. This is followed by an individualized examination on a topic selected by the candidate and his or her committee. The purpose of the individualized examination is to permit the student to demonstrate an area of strength; the format is subject to the approval of the student's committee. Study guides for the core examination are available from the department.

Students must achieve at least a 3.4 grade-point average on completed courses in the plan of study.

A program that does not conform to the prescribed requirements but is of high quality may be approved by the department chairman.

Special Features
Because statisticians often are teamed with other scientists in research projects, it is important that students have experience in group efforts. The department tries to provide this experience in several courses. In addition, the department houses the Statistical Consulting Center, which offers assistance to members of the University community in planning experiments and carrying out the analysis of experimental data. Under faculty supervision, students participate in these activities as part of their training.

Although the majority of Statistical Consulting Center projects involve statistical problems arising in these research endeavors, students in other departments, the center also seeks involvement in larger research projects and proposal writing.

Courses

For Undergraduates

Statistics and Actuarial Science

ABSTRACTS

Statistics and Actuarial Science

ABSTRACTS
Microbiology

Chad Irving, Ph.D.
Degree offered: B.S., M.S., Ph.D.

Microbiology is the branch of biology dealing with the smallest living things: bacteria, fungi, algae, protozoa, and viruses. It is closely related to immunology in the study of the response of higher organisms to foreign substances.

Microbiology and immunology are at the forefront of the modern biological revolution. Microbes are the dominant experimental subjects of choice for examining basic genetic and biological phenomena because of their small size, rapid growth rate, and relative simplicity.

A unique advantage of contemporary biochemical research employs microorganisms and immunological methods. Some research areas in which both theoretical and technological advances are occurring include: the study and evolution of microorganisms; genetic variation in prokaryotes and eukaryotes; microbial synthesis and modification of antimicrobial and other natural products; the role of microorganisms in the environment; the use of microorganisms for the production of recombinant DNA; and the study of the interactions of microorganisms with other organisms.

Students who continue beyond the bachelor's degree have career opportunities in these areas, along with teaching and university teaching, with greater responsibilities and correspondingly higher salaries.

Undergraduate Program

Bachelor of Science

An undergraduate student majoring in microbiology at The University of Iowa must meet General Education Requirements of the College of Liberal Arts. Students who obtain microbiology majors before the junior year must complete a minimum of 14 semester hours of microbiology to obtain a B.S. degree. Students who become microbiology majors after spring 1984 must complete a minimum of 21 semester hours in microbiology to obtain a B.S. degree. In both cases, no more than 2 semester hours of 60-90, 61-171, or 61-172, and 1 semester hour of 61-183 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 30 semester hours of credit in biology, 30 semester hours of which must be in microbiology.

Certification is required for employment or advancement in some areas (primarily in diagnostic microbiology).

Students are permitted to take microbiology courses more advanced than 61-157 General Microbiology only if they receive a "C" or above in 61-157.

Mathematics and science courses required by the department for the B.S. degree must be taken for letter grades.

Required courses other than microbiology courses for students who become microbiology majors prior to summer 1984 include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>413</td>
<td>Principles of Chemistry I</td>
<td>3.0</td>
</tr>
<tr>
<td>414</td>
<td>Principles of Chemistry II</td>
<td>3.0</td>
</tr>
<tr>
<td>416</td>
<td>Principles of Chemistry Lab</td>
<td>1.0</td>
</tr>
<tr>
<td>411</td>
<td>Quantitative Analysis</td>
<td>4.0</td>
</tr>
<tr>
<td>412</td>
<td>Organic Chemistry I</td>
<td>3.0</td>
</tr>
<tr>
<td>413</td>
<td>Organic Chemistry II</td>
<td>3.0</td>
</tr>
<tr>
<td>414</td>
<td>Organic Chemistry Laboratory</td>
<td>3.0</td>
</tr>
<tr>
<td>991</td>
<td>The Chemistry of Biological Materials</td>
<td>3.0</td>
</tr>
<tr>
<td>992</td>
<td>Metabolism</td>
<td>3.0</td>
</tr>
<tr>
<td>22115</td>
<td>Mathematics for the Biological Sciences</td>
<td>4.0</td>
</tr>
<tr>
<td>22119</td>
<td>Elementary Functions</td>
<td>3.0</td>
</tr>
<tr>
<td>221-12 College Physics</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td>373</td>
<td>Principles of Animal Biology</td>
<td>5.0</td>
</tr>
</tbody>
</table>

The course requirements for students who become microbiology majors after spring 1984 are the same as above, except that one semester of calculus (221-16, 221-25, or 221-35) must be taken rather than 211-15 or 211-25.

Courses that are recommended include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>8W10</td>
<td>Expository Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>8W112</td>
<td>Writing for the Sciences</td>
<td>3.0</td>
</tr>
<tr>
<td>2227</td>
<td>Advanced Computing with FORTRAN</td>
<td>3.0</td>
</tr>
<tr>
<td>22216</td>
<td>Introduction to Programming with Pascal</td>
<td>4.0</td>
</tr>
<tr>
<td>22217</td>
<td>Programming Techniques and Data Structures</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Honor Societies

The honors program is open to juniors and seniors with a grade-point average of at least 3.2 overall and 3.5 in microbiology courses. The honors program in microbiology requires 25 semester hours of course work in microbiology, including 6 semester hours in 61-171-172 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research the student presents a written report. A student successfully completing these requirements receives the B.S. degree with honors.

Graduate Programs, Faculty, Roster, Courses

See "Microbiology" in the "College of Medicine" section of the Catalog

Military Science (Army ROTC)

Head: Lieutenant Colonel Roger W. Lawson
Professor: W. Rogers L. Lawson (Chair), J. Joseph Wheelwright, III

Assistant professors: Edwin W. Anderson (Army), Larry J. Combs, (Army), Michael J. Hall (Army), Wesley C. Carpenter (Major)

Instructor: William J. Bailey (Major), Richard A. Chaucy (SGM)

The Department of Military Science is the academic unit for the Army Reserve Officers Training Corps (ROTC) program at The University of Iowa.

Participation in the program is voluntary. Courses in the program credit apply toward a degree.

The ROTC Basic Course for freshmen and seniors provides academic instruction in the fundamentals of leadership and management plus an introduction to the military role in American society and current military organization and capabilities. Military history is highlighted in tracing the development of military principles and doctrine utilized in modern military operations and organizations.

The ROTC Advanced Course for junior and senior students addresses the dynamics of organizational leadership from the small group level to large and diversified organizations. Practical instruction in developing individual leadership skills is emphasized. Between the junior and senior years, students attend a six-week, paid, advanced training camp at Fort Lewis, Washington. Selected students also may participate in active army training programs such as Ranger School, Air Assault School, and Military Intelligence Schools.

Students who successfully complete the Advanced Course receive a commission as a second lieutenant in the U.S. Army and serve either on active duty or with the National Guard or the Army Reserve near their home. Those choosing active duty serve a minimum of three years.

For all who do not take the basic course may qualify for the advanced course.
by attending a basic camp during summer, all expenses paid. Students who qualify also may be admitted to the advanced course by taking 2310 Fundamentals of Military Organization and Operation.

Credit For Prior Training

Students with prior military training or experience may qualify for basic course credit and may enter the advanced course. Prior service personnel are given advanced placement within the ROTC program and may be eligible for a commission within two years.

Although the full Army ROTC program normally spans four years, it can be completed in two, three, or three and one-half years, with departmental approval.

Graduate School

Students commissioned as lieutenants upon graduation from The University of Iowa may apply for a delay of entry or active duty to attend graduate school. An additional time is required on active duty for such delays. Delays of up to three years to attend medical, dental, and law schools are normally granted.

Special Programs

The Black belts is a fraternal organization that engages in intercollegiate military skills competition. Cadets compete for individual, local, and national awards for leadership, academic achievement, athletics, and military proficiency. The program sponsors interscholastic and community activities throughout the year, including the annual tailgate ball, a formal dinner called Cadet Corps Dinning, and an awards ceremony.

Special Facilities

The department uses several areas near Iowa City for practical field problems and military skills instruction. It uses a variety of military equipment, such as helicopters and PM radios, for practical leadership experience and in support of field training. Cadets visit Rock Island Arsenal, Rock Island Corps of Engineers District, and Camp Dodge, near Des Moines, to observe army operations and review equipment. Cadets also use the Camp Dodge leadership reaction course, orienteering course, and rappelling facilities.

Financial Aid

Reserve Officers Training Corps scholarships, providing tuition, allowance for books, laboratory fees, and a $150-per-month tax-free subsistence allowance, are available to high school seniors and students enrolled in military science courses. Three- and two-year scholarships also are available.

All cadets in the advanced course receive a $100-per-month, tax-free subsistence allowance. Cadets attending summer camps are paid while there and receive travel allowances. Students are supplied with books for University classes taught by military faculty and uniforms for training exercises. Veterans continue to draw both the ROTC allowances plus any other benefits to which they are entitled. Non-scholarship advanced course students may participate in the Simultaneous Membership Program (SMP) with the U.S. Army Reserve or National Guard. SMP cadets earn approximately $2,600 per year in addition to the basic allowance. UG and serve as officer trainees in guard and reserve units in the local area while attending the University.

Courses

2301 Introduction to the Military 1 s.h.
A brief approach to military organization with emphasis on the U.S. Army, divisions level and below, including basic organization of the military services, missions, and roles. The cadets are introduced to the responsibilities of the army officer, and to commissioned officer duties and responsibilities, and to introduction to reporting and rifle marksmanship.

2308 Fundamentals of Military Organizations 1 s.h.
Analysis of the role of the military in American society and the American armed forces. Historical background of theU.S. Army, its relationship to the Army's basic role in the North American defense system, the military's present role, national and state impact, current events, and an introduction to leadership and management problems necessary for the better officer of the future. Offered in even numbered years.

2303 Strategic and Tactical Military Analysis I 1 s.h.
Theory and application of military tactical and strategic analysis. Survey of American military history since the American Revolution with respect to the principles of war as defined by Clausewitz.

2304 Strategic and Tactical Military Analysis II 1 s.h.
Introduction to small unit tactical military leadership responsibilities, with emphasis on individual and collective combat actions, and relation of war and peace leadership to small groups. Offered in even numbered years.

2309 Fundamentals of Military Organization and Operations 3 s.h.
A comprehensive course covering the essentials of military organization and operations.

2316 Small Unit Leadership 3 s.h.
Introduction to leadership opportunities in small units, emphasis on unit goals and objectives, personal philosophy of leadership, decision making, command functions, attitude, personality, and leadership skills. Participation in a leadership development program designed to provide behavior-focused small group training in small unit leadership.

2317 Principle of Military Operations 3 s.h.
Fundamentals of military planning and preparation of operations. Nine-weeks with applications to basic fundamentals of the subject. The cadet should be able to understand the subject, its underlying principles, and their application to military operations. Introduction to joint operations and military communications utilized by an infantry company in a tactical environment. To include offensive operations, defense, reconnaissance, close support, and amphibious operations; includes a weekly field exercise exercise. Prerequisite: basic course or equivalent training.

2318 Law and Organization 3 s.h.
Emphasis on management and leadership in large organizations, including basic principles of civil law and the military justice system as it applies to a new lieutenant. Comprehensive review at the requirement of a probation

and the necessity for professional office, effective management of personnel and organizational behavior problems are highlighted. Prerequisites: 2318 and 2317.

2319 Leadership Development 3 s.h.
Comprehensive review of leadership and leadership instruction related to the skills of leadership presented in the basic course. Administrative, logical, and management skills of junior officer lieutenants final emphasis on developing the skills necessary to be an effective leader in the military and society. Prerequisites: 2318 and 2317.

2321 Readiness in Contemporary Military Issues 3 s.h.
Variables and issues in the historical and contemporary relationship between a nation's military and its society. Not limited to the military science to breadth information on military or political aspects of the basic course in military science in general.

Military Museum

Chair and curator: George H. Schuyler Assistant professor: George O. Schuyler Adjunct associate professor: Daniel C. Anderson Adjunct instructor: William W. Thompson

The Museum of Natural History offers courses that provide a fundamental background in the history, philosophy, and management of museums; their functions and operational procedures; and the conceptual, design, and technical aspects of exhibit preparation. The museum instructional program at The University of Iowa is the oldest of more than 75 university- and college-based museums in the United States, with courses offered continuously since 1910. The museum field courses are offered during the annual eight-week summer session as well as during the regular academic year. These elective college courses count as credit toward the B.A. or B.S. degree.

For graduate work, courses may be credited as a formal museumology minor concentration on a master's degree in anthropology or science education, or a Ph.D. degree in science education. Inquiries regarding program details should be directed to the appropriate major department.

Courses presented in the department are of a variety only possible at a university, providing to pursue careers in science museums, but also to those who seek supplementary instruction for majors or specialized interests in the arts and humanities. Advanced museum students can gain practical training through participation in directly programs of The University of Iowa Museum of Natural History and through formal internships with other museums.
Music/LIBERAL ARTS

Courses

24:101 Music Technique 2 s.h.
Collegiate singing, and include historical materials in music and vocal technique, and repertoire of selected vocal literature. 

24:102 Music Technique 2 s.h.
Continuation of 24:101, but may be taken as independent units. May be repeated.

31:002 Music Area Work 2 s.h.
Techniques used in preparation for the music major, such as concentrations in various aspects, analysis, and composition, and in preparation for independent research, research, and advanced level of music education.

31:004 Music Area Work 2 s.h.
Continuation of 31:002, but may be taken as independent units. May be repeated.

31:401 Principles of Exhibit Theory and Design 4 s.h.
Practices employed in the preparation and construction of educational, industrial, and professional exhibits. May be repeated.

31:412 Introduction to Musical Anthropology 3 s.h.
Introduction to the study of musicology, including the classification, description, and analysis of various musical systems.

31:413 Introduction to Composition of Musical Instruments 3 s.h.

31:414 Special Readings and Projects: Selective Readings 3 s.h.
Area special readings, educational programs, and repertoire of selected musical instruments. May be repeated.

31:415 Special Readings and Projects: Selective Readings 3 s.h.
Area special readings, educational programs, and repertoire of selected musical instruments. May be repeated.

31:416 Music Internship 3 s.h.
Practical working experience designed to introduce the student to the fields of departments, and programs of the musical arts and to relate the experience to both the academic and the professional aspects of the music profession. May be repeated. Prerequisite: special approval of the departmental faculty and the sponsoring committee.

Music

Director: Marilyn Siebert

Assistant Director: John D. Henned


Professors emeriti: Thomas A. Brown, Albert T. Lusler, Thomas M. Mace, Frank Pahle, Charles B. Rehfer, Harold R. Wohler, Martin Thompson, Thomas Turner, Harriet Voorhiser

Associate professors: Richard J. Bosworth, Delia Breck, Jonnol Geminale, Nora Crites, Donald DeRuyck, Joseph DeRuyck, Richard D. Estes, Morgan Jones, Carole Thomas, Robert Zimba

Assistant professors: Richard J. Bosworth, Delia Breck, Jonnol Geminale, Nora Crites, Donald DeRuyck, Joseph DeRuyck, Richard D. Estes, Morgan Jones, Carole Thomas, Robert Zimba

Music/LIBERAL ARTS

169

Students with deficiencies in theory must register for 25:11 Review Theory.

All baccalaureate candidates in music must satisfy all College of Liberal Arts General Education Requirements except that B.M. candidates are exempt from the historical perspectives requirement. The following School of Music course requirements also are required:

25-1.1 Literature and Theory I/A 6 s.h.
25-3.4 Aural Skills I/II 6 s.h.
25-5.1 Literature and Theory III IV 6 s.h.
25-7.8 Aural Skills III IV 6 s.h.
25-9.1 History of Music I/II 6 s.h.
25-7.1 Group Instruction in Piano I/II 6 s.h.
25-10 Techniques of Conducting 2 s.h.

Racial Attendance (required of wind, percussion, and string majors for seven semesters).

25:14 Senior Recital 1 s.h.

Four semester hours of electives from the following:

25:15 Undergraduate Composition 3 s.h.
25:17 Arranging for Band 3 s.h.
25:18 Jazz Improvisation I 3 s.h.
25:19 Jazz Improvisation II 3 s.h.
25:159 Orchestration 3 s.h.
25:147 Tonal Forms 3 s.h.
25:146 First Year of Music Literature, 1600-1750 3 s.h.
25:145 Second Year of Music Literature, 1750-1825 3 s.h.
25:146 Analysis of Music Literature, 1900-1950 3 s.h.
25:151 Analysis of Music Literature, 1950-1985 3 s.h.
25:152 Analysis of Music Literature, Special Topics 3 s.h.
25:153 Keyboard Harmony 3 s.h.
25:212 Choral Conducting 3 s.h.
25:215 fugue 3 s.h.
25:216 Variations for Applied Music 3 s.h.

Four years of applied music

Students also must participate in a major ensemble each semester of residence (minimum total of 8 semester hours). During the semester, students must be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and ensemble directors. String majors participate in University Orchestra and in St. Louis Symphony or St. Louis Chamber Orchestra. Keyboard majors may substitute accompanying for major ensemble participation for two semesters during their junior and/or senior years, with the consent of their advisors. Any requests for 25:125 adjustment of this requirement should be submitted in writing to a review committee consisting of the ensemble director(s) involved, the advisor, the major teacher(s), and a representative of the student's college or school.

The committee meets regularly at the end of each early registration period.
Music History Major
In addition to the general requirements for the B.M. degree, a list of course requirements for the music history major is available in the music office.
A senior thesis replaces the recital required of applied music majors; it consists of a paper that demonstrates the student's ability to conduct research.

Music Education
Areas of concentration in music education are instrumental, vocal music, vocal music, and music therapy. In addition to the S.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.

String Majors
Instruction in performance 2 s.h.
(Violin and viola majors take one year of 25.21 Violin; cell and bass majors take one year of 25.21 Violin)
25.10 Cello Strings 1-2 s.h.
(Commits 2 strings; viola and bass; violin strings)
25.12 12-string Technique 2 s.h.
(normal clarinet and cornet)
25.107 Techniques of Conducting 2 s.h.
25.116 Instrumental Conducting 1 s.h.
25.150 String Methods and Materials 4 s.h.
75.144 Methods and Materials: Elementary School (instrumental music) 2 s.h.
75.116 Observation and Laboratory Practice in the Secondary School 6 s.h.
75.122 Laboratory Practice in the Elementary School 6 s.h.
75.127 Seminar: Curriculum and Student Teaching 1 s.h.
Brass, Woodwind, or Percussion Majors
Brass, woodwind, and percussion majors in music education participate in a concert band each semester and in marching band for two fall semesters during the first two years in residence at the university. Students may substitute marching band techniques for marching band, with permission of their advisor and the director of bands. Courses required.
75.143 Instrumental Techniques 8 s.h.
75.197 Techniques of Conducting 2 s.h.
75.198 Instrumental Conducting 1 s.h.
75.144 Methods and Materials: Elementary School (instrumental music) 2 s.h.
75.138 Recital Band Instrument Care and Repair 1 s.h.
75.140 Band Methods and Materials 3 s.h.
75.191 Observation and Laboratory Practice in the Secondary School 6 s.h.
75.122 Laboratory Practice in the Elementary School 6 s.h.
75.127 Seminar: Curriculum and Student Teaching 1 s.h.
Vocal and Keyboard Majors
Vocal performance majors should consult the music office for recommendations.
75.147 Choral Methods 3 s.h.
75.148 Choral Conducting and Literature 2 s.h.
25.115-116 Singing for Singers I-II 4 s.h.
75.140 Methods and Materials: Elementary School (general music) 3 s.h.
75.142 Methods and Materials: Secondary School (general music) 3 s.h.
75.191 Observation and Laboratory Practice in the Secondary School 6 s.h.
75.122 Laboratory Practice in the Elementary School 6 s.h.
75.187 Seminar: Curriculum and Student Teaching 1 s.h.

Keyboard majors preparing for music teacher certification must pass the following: piano repertoire examination of 25.71-72 Group instruction in Piano III-II. Keyboard majors are required to complete the requirements in either the brass-woodwind-percussion or string area and pass the piano repertoire examination of 25.71-72 Group instruction in Piano III-II.
Teaching Minor
Students qualify for certification as elementary school general music teachers by completing the approved certification program for elementary teachers and 22-23 semester hours as follows:
75.119 Beginning folk guitar 2 s.h.
75.145 Methods and Materials: Elementary School General Music 3 s.h.
75.122 Laboratory Practice in the Elementary School 2-3 s.h.
Applied music Ensemble (chorus, band, or orchestra) 2 s.h.
2 of the following:
25.1 Literature and Theory I 3 s.h.
25.2 Literature and Theory II 3 s.h.
25.10 Fundamentals of Music 3 s.h.

Music Therapy
Admission to the program in music therapy is based on a successful completion of 25.114 Orientation to Music Therapy. In addition to the specific course requirements listed below, specific courses are required in biology, sociology, abnormal psychology, and social psychology.
A six-month internship in an approved college clinical facility is required before the completion of the degree. Following successful completion of the internship, students may apply for registration with the National Association for Music Therapy, and are qualified to sit for the certification board examination. To increase job opportunities in the education sector, students are encouraged to complete music teacher certification requirements.

Music Therapy
25.94 Music Therapy Practicum I-3 s.h.
3 s.h. credits respectively
25.96 Music Techniques in Special Education and Recreation 3 s.h.
25.119 Introduction to Music Therapy 2 s.h.
75.144 Psychology of Music 2 s.h.
25.149 Behavioral Research in Music 1 s.h.
25.138 Music Therapy Techniques: Atypical Children 3 s.h.
25.139 Music Therapy Techniques: Adult Clients 3 s.h.
25.140 Internship in Music Therapy 2 s.h.

Composition/Theory Major
After applying for admission to the program, the candidate is assigned a faculty advisor. Admission to the program is in most cases conditional through the end of the sophomore year. Full admission is granted by consensus of the theory/composition faculty on the basis of:
Honors students in music are encouraged to take graduate-level courses. Advanced course work in music history, music theory, and languages is particularly recommended. An honors committee appointed by the honors advisor and the student's faculty sponsor evaluates the student's work.

Honors achievement in music is recognized at the annual Honors Convocation and on occasion.

See the school's honors advisor for more information.

Financial Aid

A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to the School of Music.

Minor

A student may minor in music by completing 15 semester hours in the School of Music. 21 of which must be in advanced courses. A complete list of advanced courses is available at the music office. In addition to the College of Liberal Arts requirements for completing a minor, only 2 semester hours of the 15 may be in applied lessons and 2 semester hours in ensembles.

Graduate Programs

Entering graduate students must take the School of Music advisory examination in music theory (harmony, ear training, form, and counterpoint), and history and literature, before registering. The advisory examination is given each semester on the two days (excluding Sunday) before registration. A student describing the general content of these tests may be examined from the director of the office, School of Music. (For general graduate admission, degree, and examination requirements, see the "Graduate College" section of the Catalog.)

Theory Pedagogy Minor

Candidates for graduate degrees in music may elect a minor in music theory pedagogy by completing the following courses:

52:145 Contrapuntal Forms 3 s.h.
52:147 Total Forms (or course postponed excepted by advisory exam) 3 s.h.
52:234 Observation and Practice Teaching in Theory 1-2 s.h.
52:238 Methods and Techniques of Teaching Basic Theory 3 s.h.

Two courses from the following:
52:148 Analysis of Music Literature 1600-1750 3 s.h.
52:150 Analysis of Music Literature 1750-1825 3 s.h.
Admission
Before applicants are considered for admission, they must submit the following materials in their indicated areas of concentration, as follows:

- Composition—representative musical scores
- Theory—analyses or research papers
- Music education—no materials required
- Performance (including conducting)—audition
- Musicology—research papers, theses
- Pedagogy—contact School of Music
- Information about specific admission and curricular requirements for each area is available from the director's office.

Master of Fine Arts
The M.F.A. is for students of superior ability in composition, instrumental or vocal performance, conducting, and opera theater directing. It requires a minimum of 48 post-baccalaureate semester hours.

In addition to the entrance and curricular requirements for the Master of Fine Arts degree, the student must pass at least two full-length recitals or programs (25401 M.F.A. Thesis) for which a maximum of 4 semester hours of credit will be granted. The student may earn a Master of Arts degree, but all requirements for each degree—including two final examinations—must be met separately, with a minimum combined total of 60 semester hours of graduate credit. (See the "Graduate College" section of the Catalog for further details.)

Doctoral Degrees
General Requirements
All doctoral study in music includes:

- Minimum course requirements listed under the M.A. degree;
- One or more additional electives from the analytical studies sequence 25146-152, 25212, 25215, or 19222, or equivalent;
- One or more additional courses in the history of music chosen from those listed in the master's degree requirements;
- 25765 Musical Acoustics or equivalent;
- Writing proficiency in at least one foreign language (must be completed before comprehensive examination);
- Music education students may substitute two courses in statistics for this requirement.

Dissertation
Doctoral students must participate in a major ensemble during each term of registration unless excused by their advisors (see previous list of major ensembles). During the summer semester, students should be available for ensemble participation as needed. Keyboard majors may substitute accomplishment in place of a major ensemble, at the advisor's discretion.

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 written performance. The student is required to audition in his or her major performance area.

Information about specific admission and curricular 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 concerto performance with orchestra or other appropriate ensemble. Vocalists may substitute the execution of one or more major roles in a large-scale work for one of their recitals. Conductors will present two performances.

D.M.A. candidates also must complete a scholarly investigation of limited scope in a written essay.

Admission
Before students are considered for admission to a doctoral program, they must have submitted the following materials in their indicated area of concentration, as follows:

- Composition—representative musical scores
- Theory—analyses or research papers
- Music education—research papers
- Musicology—research papers and audition
- Performance (including conducting)—audition
- Music history and musicology—research papers, theses

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 Nonmajors
Courses particularly recommended for students who are not majoring in music but who have an unusual interest in it include 25133-14 Masterpieces of Music; 25139 (last Eightheenth- and Nineteenth-Century Composers; 25160 Early Eighteenth- and Twentieth-Century Composers; the sequences 25103-14 World Music I-IV, for students interested in non-Western music; and 2510 Fundamentals of Music. 25134 Beginning Folk Guitar is available for nonmajors who wish to develop elementary performance skills for personal musical growth and enjoyment. Participation in School of Music ensembles is open to all University students with the ensemble director's approval (see previous list of major ensembles).

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. Begun in 1954 with a grant from the Rockefeller Foundation, the center provides stipends for skilled mentors; musicologists who form a nucleus ensemble for the purpose of performing twentieth-century works. As a vital ingredient of the School of Music's composition program, the Center for New Music functions as a research and performance laboratory for staff and students and as a repertory ensemble for the continued performance of new music.

Facilities
The University of 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, 72 recital rooms, a large library, two electronic music laboratories, ear training and listening facilities with 50 listening posts, four large rehearsal halls, and three ensemble practice rooms, professional recording facilities, a fine arts computer studio with an emulated and five microcomputers, eight practice and recital organs, and the 701-seat Clapp Recital Hall. The university's 2,000 people for concerts and 2,400 for opera and other stage productions.

Resources of the Rita Benton Music Library include more than 60,000 volumes of music and books; some 3,000 titles in microfiche; over 14,000 sound recordings.
Courses

General

21-04 Cooperative Education Internship 3 s.h.
21-05 Introduction to Music 3 s.h.
21-17 Masterpieces of Music I 3 s.h.
21-18 Masterpieces of Music II 3 s.h.
21-34Music 14 s.h.
21-41 Masterpieces of Music 5-11 s.h.
21-61 Music Composition for the early twentieth century and 20th century music 3 s.h.

Theory and Composition

21-03 Literature and Theory I 3 s.h.
21-04 Literature and Theory II 3 s.h.
21-06 Composition of 19th Composers 3 s.h.
21-00 Advanced Studies I 1 s.h.
21-04 Advanced Studies II 1 s.h.
21-06 Literature and Theory III 3 s.h.
21-10 Literature and Theory IV 3 s.h.
21-14 Literature and Theory V 4 s.h.
21-17 Advanced Literature and Theory 3 s.h.
21-41 Fundamentals of Music 3 s.h.
21-03 Methods and Techniques of Teaching Basic Theory I 3 s.h.
21-04 Music Theory II 3 s.h.
21-05 Electronic Studies I 3 s.h.
21-10 Electronic Studies II 3 s.h.
21-20 History of Music Theory 3 s.h.
21-21 History of Music Theory II 3 s.h.
21-22 History of Music Theory III 3 s.h.
21-23 History of Music Theory IV 3 s.h.
21-24 History of Music Theory V 3 s.h.
21-25 History of Music Theory VI 3 s.h.
21-26 History of Music Theory VII 3 s.h.
21-27 History of Music Theory VIII 3 s.h.

Historical Surveys and Musicohistory

21-35 French Music and Art: 1885 to World War I 3 s.h.
21-42 Modernist Form 3 s.h.
21-50 History of Music I 3 s.h.
21-51 History of Music II 3 s.h.
21-52 History of Music III 3 s.h.
21-53 History of Music IV 3 s.h.
21-54 History of Music V 3 s.h.
21-55 History of Music VI 3 s.h.
21-56 History of Music VII 3 s.h.
21-57 History of Music VIII 3 s.h.
21-58 History of Music IX 3 s.h.
21-59 History of Music X 3 s.h.

Other Courses

21-00 Undergraduate Seminar 3 s.h.
21-01 Aspects of American Music: Pop and Jazz Arts 3 s.h.
21-02 World Music I 3 s.h.
21-03 World Music II 3 s.h.
21-04 World Music III 3 s.h.
21-05 World Music IV 3 s.h.
21-06 World Music V 3 s.h.
21-07 World Music VI 3 s.h.
21-08 World Music VII 3 s.h.
21-09 World Music VIII 3 s.h.
21-10 World Music IX 3 s.h.
21-11 World Music X 3 s.h.
21-12 World Music XI 3 s.h.
21-13 World Music XII 3 s.h.
21-14 World Music XIII 3 s.h.
21-15 World Music XIV 3 s.h.
21-16 World Music XV 3 s.h.
21-17 World Music XVI 3 s.h.
21-18 World Music XVII 3 s.h.
21-19 World Music XVIII 3 s.h.
21-20 World Music XIX 3 s.h.
21-21 World Music XX 3 s.h.
21-22 World Music XXI 3 s.h.
21-23 World Music XXII 3 s.h.
21-24 World Music XXIII 3 s.h.
21-25 World Music XXIV 3 s.h.
21-26 World Music XXV 3 s.h.
21-27 World Music XXVI 3 s.h.
21-28 World Music XXVII 3 s.h.
21-29 World Music XXVIII 3 s.h.
21-30 World Music XXIX 3 s.h.
21-31 World Music XXX 3 s.h.
21-32 World Music XXXI 3 s.h.
21-33 World Music XXXII 3 s.h.
21-34 World Music XXXIII 3 s.h.
21-35 World Music XXXIV 3 s.h.
21-36 World Music XXXV 3 s.h.
21-37 World Music XXXVI 3 s.h.
21-38 World Music XXXVII 3 s.h.
21-39 World Music XXXVIII 3 s.h.
21-40 World Music XXXIX 3 s.h.
21-41 World Music XL 3 s.h.
21-42 World Music XLI 3 s.h.
21-43 World Music XLII 3 s.h.
21-44 World Music XLIII 3 s.h.
21-45 World Music XLIV 3 s.h.
21-46 World Music XLV 3 s.h.
21-47 World Music XLVI 3 s.h.
21-48 World Music XLVII 3 s.h.
21-49 World Music XLVIII 3 s.h.
21-50 World Music XLIX 3 s.h.
21-51 World Music L 3 s.h.
21-52 World Music LI 3 s.h.
21-53 World Music LII 3 s.h.
21-54 World Music LIII 3 s.h.
21-55 World Music LIV 3 s.h.
21-56 World Music LV 3 s.h.
21-57 World Music LVI 3 s.h.
21-58 World Music LVII 3 s.h.
21-59 World Music LVIII 3 s.h.
21-60 World Music LIX 3 s.h.
21-61 World Music LX 3 s.h.
21-62 World Music LXI 3 s.h.
21-63 World Music LXII 3 s.h.
21-64 World Music LXIII 3 s.h.
21-65 World Music LXIV 3 s.h.
21-66 World Music LXV 3 s.h.
21-67 World Music LXVI 3 s.h.
21-68 World Music LXVII 3 s.h.
21-69 World Music LXVIII 3 s.h.
21-70 World Music LXIX 3 s.h.
25:105 Advanced Instrumental Methods and Literature 2 b.
25:110 Advanced Music Theory 2 b.
25:115 Methods of Teaching Music 3 a.
25:118 Music History 3 a.
25:120 Music History 3 a.
25:125 Music Theory 3 a.
25:126 Music Theory 3 a.
25:133 Music Theory 3 a.
25:134 Music Theory 3 a.
25:137 Music Theory 3 a.
25:139 Music Theory 3 a.
25:140 Music Theory 3 a.
25:141 Music Theory 3 a.
25:142 Music Theory 3 a.
25:143 Music Theory 3 a.
25:144 Music Theory 3 a.
25:146 Music Theory 3 a.
25:147 Music Theory 3 a.
25:149 Music Theory 3 a.
25:150 Music Theory 3 a.
25:151 Music Theory 3 a.
25:152 Music Theory 3 a.
25:156 Music Theory 3 a.
25:158 Music Theory 3 a.
25:159 Music Theory 3 a.
25:161 Music Theory 3 a.
25:162 Music Theory 3 a.
25:164 Music Theory 3 a.
25:165 Music Theory 3 a.
25:166 Music Theory 3 a.
25:171 Music Theory 3 a.
25:172 Music Theory 3 a.
25:175 Music Theory 3 a.
25:177 Music Theory 3 a.
25:179 Music Theory 3 a.
25:180 Music Theory 3 a.
25:183 Music Theory 3 a.
25:184 Music Theory 3 a.
25:186 Music Theory 3 a.
25:188 Music Theory 3 a.
25:189 Music Theory 3 a.
25:190 Music Theory 3 a.
25:194 Music Theory 3 a.
25:196 Music Theory 3 a.
25:197 Music Theory 3 a.
25:198 Music Theory 3 a.
25:200 Music Theory 3 a.
25:201 Music Theory 3 a.
25:203 Music Theory 3 a.
25:204 Music Theory 3 a.
25:205 Music Theory 3 a.
25:207 Music Theory 3 a.
25:208 Music Theory 3 a.
25:210 Music Theory 3 a.
25:211 Music Theory 3 a.
25:212 Music Theory 3 a.
25:216 Music Theory 3 a.
25:218 Music Theory 3 a.
25:221 Music Theory 3 a.
25:222 Music Theory 3 a.
25:223 Music Theory 3 a.
25:225 Music Theory 3 a.
25:226 Music Theory 3 a.
25:227 Music Theory 3 a.
25:228 Music Theory 3 a.
25:229 Music Theory 3 a.
25:231 Music Theory 3 a.
25:236 Music Theory 3 a.
25:238 Music Theory 3 a.
25:239 Music Theory 3 a.
Nuclear Medicine
Technology

See “Division of Associated Medical Sciences” in the “College of Medicine” section of the Catalog.

Philosophy

Head: Philip Currens

Professor: Lord Addis, Panayiotis Buchxman, Phillip Currens, Richard Funston

Associate professors: James Buntinger, Evan Taks

Assistant professors: Scott Macdonald, Phyllis Hussey

Degrees offered: B.A., M.A., Ph.D.

Undergraduate Program

Undergraduate courses in philosophy are designed to impart knowledge of fundamental issues and main developments in philosophy while strengthening logical and analytical skills. A major in philosophy develops abilities useful for graduate or professional work in many fields—law, for example—and for any situation requiring clear, systematic thinking. A graduate degree is necessary for college teaching in philosophy.

Bachelor of Arts

The Bachelor of Arts degree requires at least 27 semester hours of credit in courses numbered from 26102 through 26119, and must include:

26103 Introduction to Symbolic Logic
26111 Ancient Philosophy
26114 Modern Philosophy: Descartes through Kant

Bachelor of Science

The final 12 semester hours of philosophy courses used to complete these departmental requirements must be taken at The University of Iowa. Undergraduate majors in philosophy are excused from four semester hours of the liberal arts General Education Requirement in historical perspectives.

In addition to prerequisites listed to individual courses, considerations such as the order in which historical courses are taken are relevant to the effective structuring of a major’s undergraduate education. For further details consult the director of undergraduate studies.

Minor

In order to achieve a minor in philosophy, a student must take and pass a minimum of three seminar hours in philosophy courses. Of these, a minimum of 12 hours must be in courses that are numbered above 261 and are taught in the Department of Philosophy at The University of Iowa. For further details consult the director of undergraduate studies.

Honors

The department administers an Honors Program for undergraduate students of superior ability. In order to be admitted to the honors program in philosophy, a student must be registered in the College of Liberal Arts Honors Program, and must have taken and passed at least three philosophy courses for the major. In order to graduate with honors in philosophy, a student must complete the regular requirements for an undergraduate major in philosophy with a grade-point average in the philosophy courses of at least 3.6, and must write an acceptable honors thesis on a significant topic in an area of philosophy of the student’s interest. For further details consult the director of undergraduate studies.

Graduate Programs

The graduate program in philosophy is designed to train teachers and scholars in philosophy. The main areas in the graduate program are metaphysics, epistemology, history of philosophy, ethics, logic, and philosophy of science.

Master of Arts

The Master of Arts degree requires a minimum of 30 semester hours and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. Passing an oral final examination also is required. There is no foreign language requirement. For details consult the director of graduate studies.

Doctor of Philosophy

The Doctor of Philosophy degree requires a minimum of 72 semester hours of graduate credit by the time the degree is completed. Candidacy for the doctoral program is determined by a vote of the entire faculty of the Department of Philosophy, usually after the student has completed three semesters of graduate study in residence.
Physical Education and Dance

Chair: N. Peggy Bjerke
Professor of Physical Education
Professors emeriti: Margaret G. Fox, M. Clyde Scales
Associate professors: Judith N. Alabi, Susan (Bland), Maia A. Brown, N. Peggy Ravine, Diane L. Gill, Christelle H.B. Grant, Francesca Marchetti, Joseph F. Saltelli, Yvon My D. Belton
Assistant professors: David Detler, Helen Charlima Davis Dickson

The Department of Physical Education and Dance offers bachelor's degree programs with emphases in physical education (teaching and non-teaching majors), the coaching of sports, the teaching of dance, dance performance, and sports communications.

It offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees in physical education.

Undergraduate Programs in Physical Education

Each undergraduate student in physical education selects a wide variety of courses and activities in preparation for careers in business and industry, sports journalism and broadcasting, fitness and health clinics, sport management and sports marketing, and public school teaching and coaching.

Students acquire theoretical background through anatomy, kinesiology, biochemistry, and health courses, with implications for the performance and teaching of movement skills.

The undergraduate programs are also designed to prepare students for graduate work in physical education. (See "Graduate Programs" for areas of specialization.)

Students who plan to teach must meet certification requirements (see the "College of Education" section of the Catalog). At least a 2.5 grade-point average and must demonstrate competence for teaching and/or leadership roles. Students in the non-teaching major program must complete an internship assignment. A grade-point average of 2.3 is required before registering for the internship.

The professional major in physical education may lead to either the Bachelor of Arts or Bachelor of Science degree. (Four semester hours of the General Education requirements for natural science are waived for physical education majors.)

The programs are as follows:

**Teacher Education Program**

Program Requirements

- **2819 Orientation to Physical Education or Dance**: 0-4 s.h.
- **2711 Orientation to Physical Education**: 0-4 s.h.
- **2817 Advanced First Aid and CPR (Or Red Cross Certification)**
- **2819 Anatomy**: 3 s.h.
- **2753 Human Anatomy**: 3 s.h.
- **2811 Kinesiology**: 3 s.h.
- **2717 Biomechanics of Physical Education**: 3 s.h.
- **2692 Measurement**: 3 s.h.
- **2696 Physiology of Exercise**: 3 s.h.
- **2714 Physical Education for the Handicapped**: 2-3 s.h.
- **2716 Physical Education for Special Students**: 3 s.h.

**Administration of Physical Education and Athletics** or
- **2710 Administration and Curriculum in Physical Education**: 3 s.h.
- **2812 Contemporary Issues of Health Education**: 3 s.h.

Skill Techniques Requirements:

Physical Education Majors must complete the following requirements: basketball, volleyball, softball, field sports, intermediate level team sports, swimming, intermediate level individual activity, half and full dance, and modern dance or jazz.

**Pre-requisite**: 72120. Students must complete all courses in option A or B,

**Option A: Physical Education and Athletic Emphasis**

- **2826 Laboratory in Teaching of Sports**: 1 s.h.
- **2827 Teaching of Dance**: 2 s.h.
- **2833 Psycho-Social Dimensions of Sport**: 3 s.h.
- **2811 History and Philosophy of Physical Education**: 2 s.h.

**Option B: Dance Emphasis**

- **2826 Dance History: Primitive Nineteenth Century**: 3 s.h.
- **2827 Twentieth Century**: 3 s.h.
- **2833 Composition I**: 2 s.h.
- **2829 Rhythm Analysis of Dance**: 2 s.h.
- **2828 Dance Production**: 3 s.h.
- **76125 Methods and Materials of Teaching Children's Dance**: 2 s.h.
- **76126 Advanced Dance Technique courses**: 2 s.h.

**Professional Education Requirements**

See Introduction to Mathematics for Teachers.

- **76172 Methods and Materials in Elementary Physical Education**: 2 s.h.
- **76175 Educational Psychology and Measurement**: 3 s.h.
- **76176 Introduction to Teaching Physical Education**: 2 s.h.
- **76150 Issues in Education**: 2 s.h.
- **76146 Methods of Secondary Physical Education**: 3 s.h.
- **76170 Human Relations for the Classroom Teacher**: 3 s.h.
- **76176: Seminar: Curriculum and Student Teaching**: 1 s.h.
- **76171 Observation and Laboratory Practice in Secondary School**: 6 s.h.
- **76172 Laboratory Practice in Elementary School**: 6 s.h.
- **76196 Practicum (Optional)**: 2 s.h.

**Physical Education and Sport Program (non-teaching)**

**Physical Education Core Requirements**

- **2819 Orientation to Physical Education**: 1 s.h.
- **2819 Anatomy**: 3 s.h.
- **2819 Kinesiology**: 3 s.h.
- **28192 Physiology of Exercise**: 3 s.h.
- **2819 Measurement**: 3 s.h.
- **28193 Administration of Physical Education and Athletics**: 2 s.h.
- **28195 Administration of Fitness Wellness Programs**: 2 s.h.
- **2819 History and Philosophy of Physical Education**: 2 s.h.
- **2833 Psycho-Social Dimensions of Sports**: 3 s.h.
- **2819 Internships**: 6 s.h.

**Sport and Dance Activity Requirements**

Seven beginning level skills and three intermediate to advanced level skills

**Fitness Specialist**

- **28332 Stabilic Design for Exercise**: 2 s.h.
- **28333 Fitness for Adults**: 2 s.h.
- **2827 Advanced First Aid and CPR**: 2 s.h.
- **2819 Care of Athletic Injuries**: 3 s.h.
- **28191 Methods of Secondary Physical Education**: 3 s.h.
18:11 Food, Nutrition, and You 3 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.
28:271 Growth and Motor Development 2 s.h.
22C:1 Survey of Computing 5 s.h.
Sport Specialist/Sports Administration
28:119 Methods of Secondary
Physical Education 5 s.h.
28:468 Fitness for Adults 2 s.h.
28:107 Physical Education for the Handicapped 3 s.h.
28:37 Advanced First Aid and CPR 2 s.h.
28:195 Care of Athletic Injuries 3 s.h.
28:14 Theory of Coaching 2 s.h.
28:271 Growth and Motor Development 2 s.h.
22C:1 Survey of Computing 3 s.h.
Sports Marketing
28:08 Fitness for Adults 2 s.h.
28:161 Sports Information 2 s.h.
17:90 Textiles for Consumers 3 s.h.
22C:1 Survey of Computing 3 s.h.
77W:105 Design and Production of Media for Instruction 2 s.h.
19:81 Introduction to Communication Skills 3 s.h.
Program Leading to Coaching Endorsement
Theory of Coaching
28:14 Theory of Coaching 2 s.h.
or 28:218 Advanced Coaching 2 s.h.
Growth and Development
28:71 Growth and Motor Development 2 s.h.
or 17:19 Growth and Development of the Young Child 3 s.h.
or 77W:106 Child Development 3 s.h.
Anatomy
28:80 Anatomy 3 s.h.
or 27:53 Human Anatomy 3 s.h.
Exercise Physiology
28:106 Physiology of Exercise 3 s.h.
or 27:141 Exercise Physiology 3 s.h.
Advanced First Aid and CPR
28:37 Advanced First Aid and CPR 2 s.h.
or 27:56 First Aid and CPR 2 s.h.
or Red Cross Certifications
Care and Prevention of Athletic Injuries
(Should be taken following anatomy and physiology)
27:57 Basic Athletic Training 3 s.h.
or 28:195 Care of Athletic Injuries 3 s.h.
Administration of Physical Education and Athletics
27:103 Administration and Curriculum in Physical Education 3 s.h.
or 28:120 Administration of Physical Education and Athletics 2 s.h.
Coaching Practicum
70:198 Coaching Practicum 15 s.h.
Supervised experience in coaching interscholastic teams under direction of certified secondary school coaches. Open only to students completing coaching certification programs. Prerequisite: consent of instructor. *Open only to graduate students.
Health Education Endorsement Program
The following sequence of courses meets the requirements for Iowa approval Area 102 for both the Elementary Education 40 and the secondary Education 20. Students must complete a minimum of 20 semester hours to fulfill this area approval.
28:37 Advanced First Aid and CPR 2 s.h.
or 27:56 First Aid and CPR 2 s.h.
or Red Cross Certifications in First Aid and CPR 3 s.h.
37E:1 Food, Nutrition, and You 3 s.h.
37E:1 Growth and Motor Development 2 s.h.
or 17:19 Growth and Development of the Young Child 3 s.h.
or 77W:106 Child Development 3 s.h.
or 7C:112 Human Sexuality 3 s.h.
or 71:120 Drugs: Their Nature, Action, and Use 2 s.h.
or 46:56 Non-Prescription Drugs 2 s.h.
or 72:139 Human Nutrition 4 s.h.
or 28:166 Physiology of Exercise 3 s.h.
or 28:142 Contemporary Issues of Health Education 3 s.h.
or 0:50 Methods and Administration of School Health Programs 3 s.h.
Prerequisite: 28:142
Minor
28:71 Growth and Motor Development 2 s.h.
or 28:72 Methods and Materials in Elementary School Physical Education 2 s.h.
or 28:91 Anatomy 3 s.h.
or 28:81 Kinesiology 3 s.h.
or 28:02 Measurement 3 s.h.
or 28:83 Psychosocial Dimensions of Sport 3 s.h.
or 28:19 Physiology of Exercise 3 s.h.
or 28:119 Methods of Secondary Physical Education 3 s.h.
or 28:120 History and Philosophy of Physical Education 2 s.h.
or 28:142 Contemporary Issues of Health Education 3 s.h.
The following skills courses also are required for the minor: basketball, volleyball, softball, field sports, intermediate level team sport, tamping and apparatus, track and field, racquet sport, swimming, intermediate level individual activity, folk and square dance, and modern dance or degrees and over (35) doctoral degrees in the past 50 years. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department's proud heritage of producing leaders has been furthered by recent graduates, and it continues to encourage high aspirations of the young women and men it serarounds. 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. Completing the Division I degree usually leads to teaching, research, coaching, administration, or supervision in a school or university. The outstanding characteristics of the Division I degree are the flexibility of program planning for the individual student and the diversity of available research experience. Attendance in summer sessions is helpful in obtaining diverse instruction. Graduate students work primarily in the Department of Physical Education and Dance, but the resources of the entire University are available as needed. Work outside the department provides a broad view and enrichment for the selected specialization of the major's and doctoral career. The most common areas of specialization have been administration of athletics and
LIBERAL ARTS/Physical Education and Dance

physical education, methods and supervision, coaching, measurement and evaluation, sociology of sport, and sport psychology. Interdisciplinary programs are available in many areas and are strongly encouraged for those specializing in administration, supervision, coaching, and communications.

The graduate student group is composed of domestic and international in makeup. A research laboratory equipped for psychological, measurement, and motor learning research is available in the department. Other equipment needs may be met on an interdepartmental shared-use basis. Computer terminals are available in the department, and the services of the University's Weeg Computing Center are available for research.

Master of Arts

The M.A. degree is awarded on completion of at least 30 semester hours of graduate work including thesis, or 35 semester hours of course work without thesis. The curriculum leads to teaching, administration, supervision in the schools, coaching certification, or preparation for advanced degree work.

Students must demonstrate competence in the following seven areas: anatomy, kinesiology, physiology, measurement and evaluation or assessment; methods and administration of physical education; history and philosophy of physical education; and psychological dimensions of sport. Competence may be demonstrated by completion of a course or satisfactory performance on a written examination. The following courses are required.

28.205 Techniques of Research 3 s.h.
28.302 Seminar Perspectives in Human Movement 2 s.h.
28.401 Thesis (for students on thesis option) 3 s.h.

Program Options

M.A. students may elect a personal concentration program in administration of physical/physical education, administration of fitness/wellness programs, coaching, dance, measurement and evaluation, methods and supervision, philosophy of sport/physical education, psychology of sport, sociology of sport, sport communication, or women in sport. Students interested in other specific areas are encouraged to submit a proposal to the graduate committee for consideration.

Students in both general and specialized curricula work with an advisor to develop their programs according to guidelines set by the departmental graduate committee.

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.

Prerequisites

Competence in these areas must be met to the following levels:

- 1 course in general education
- 1 course in physical education
- 1 course in psychology
- 1 course in art

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) Aptitude Test in a given language, or by passing a Ph.D. language examination.

The computer tool requirement may be satisfied by taking 3 semester hours as approved by the departmental graduate committee.

Required Courses

28.301 Research Forum 0 s.h.
28.301 Seminar in Research 2 s.h.
28.302 Seminar Perspectives in Human Movement 2 s.h.
28.401 Thesis 2 s.h.

Specialization

Students must complete a specialization of 30 semester hours, excluding dissertation; they also must take at least 20 semester hours in one or more departments other than physical education. The following specialization areas have been approved: administration of physical education and athletics, measurement and evaluation, psychology of sport, and sociology of sport. Students interested in another area should submit a plan of study for consideration.

Comprehensive Examination

All doctoral students must pass a comprehensive examination based on the written examination. The examination is conducted according to the policies established by the departmental graduate committee, and is taken on a date set by the student and his or her advisor. The program of study and dissertation topic must be fixed and the number of credits completed prior to the comprehensive examination.

Dissertation

All doctoral students are required to complete a dissertation. A final examination is held with an appropriate committee.

Residency Requirement

Two semesters of at least 9 semester hours in residence at The University of Iowa are required.

Undergraduate Programs in Dance

Bachelor of Arts

Requirements for the Bachelor of Arts are as follows:

- Required Courses
- 18.19 Orientation to Physical Education or Dance 1 s.h.
- 28.26 Dance Production 1 s.h.
- 28.29 Rhythmic Analysis of Dance 2 s.h.
- 28.73 Composition I 2 s.h.
- 28.74 Composition II 2 s.h.
- 28.80 Anatomy 3 s.h.
- 28.81 Kinesiology 3 s.h.
- 28.114 Dance History: Primitive Nineteenth Century 3 s.h.
- 28.115 Twentieth-Century Dance 3 s.h.
- 28.113 Composition III 2 s.h.
- 28.114 Composition IV 2 s.h.
- 28.177 Beginning Labanotation 3 s.h.
- 28.185 Opera Dance Theatre Production 3 s.h.
- 28.191 Independent Choreography 1-4 s.h.

CBA Courses

- 28.101 Methods and Materials of Teaching Children's Dance 2-3 s.h.
- 28.113 Ballet Posture 1-2 s.h.
- 28.117 Ballet Pedagogy 3 s.h.
- 28.122 Workshop in Dance 1-2 s.h.
- 28.125 Jerings in Dance 1-2 s.h.
- 28.130 Improvisation 1-2 s.h.
- 28.138 Teaching of Modern Dance 3 s.h.
- 28.139 Readings in Dance 1-2 s.h.
- 28.157 Dance Theory 3 s.h.
- 28.176 Criticism of Dance 3 s.h.
- 28.177 Intermediate Labanotation 2 s.h.
- 28.181 Dance Performance 2-3 s.h.

Electives

- 28.165 Independent Study 1-6 s.h.
- 28.173 Independent Research 1-6 s.h.

Technique Requirement

Dance majors must take a minimum of four semesters of study in both modern dance and ballet at the student's appropriate technical level in each discipline. This requirement should be fulfilled during the department's first two years as a declared major. Eighteen semester hours must be earned in dance technique classes from the following:

- 28.305 Tap 1-2 s.h.
- 28.310 Jazz Dance 1-2 s.h.
- 28.303 Modern Dance 1-2 s.h.
- 28.304 Contemporary Dance 1-2 s.h.
- 28.308 Jazz Dance 1-2 s.h.
- 28.309 Jazz Dance 1-2 s.h.
- 28.310 Jazz Dance 1-2 s.h.
- 28.311 Jazz Dance 1-2 s.h.
Physical Education and Dance/LIBERAL ARTS 181

282:22 Low Intermediate Jazz 1-2 s.h.
282:30 Beginning Modern Dance 1-2 s.h.
282:31 Continuing Modern Dance 1-2 s.h.
282:32 Low Intermediate Modern Dance 1-2 s.h.
282:38 Major Modern Dance II 1-3 s.h.
282:58 Major Modern Dance III 1-3 s.h.
282:109 Major Ballet I 1-3 s.h.
282:110 Major Ballet II 1-3 s.h.

Within the required 18 semester hours of dance technique, a minimum of two consecutive semesters must be taken from 282:107, 282:108, 282:109, or 282:110. Also required is a minimum of one semester of tap and jazz technique.

Dance Education
See the B.S. in physical education (dance specialization) program.

Graduate Program in Dance
The Master of Arts degree in physical education (dance specialization) is awarded on completion of at least 30 semester hours of graduate work including thesis.

Prerequisites
Audition
282:75-76 Composition I-II 4 s.h.
282:80 Anatomy 3 s.h.
282:81 Kinesiology 3 s.h.
282:20 Rhythmic Analysis of Dance 2 s.h.
282:30 Beginning Modern Dance 3 s.h.
282:31 Intermediate Dance History: Primitive to Nineteenth Century 3 s.h.

Required Courses
282:17 Ballet Pedagogy 3 s.h.
282:38 Teaching of Modern Dance 2 s.h.
282:37 Teaching of Technique I 2 s.h.
282:174 Composition IV 2 s.h.
282:177 Beginning Laboratory 3 s.h.
282:115 Twentieth-Century Dance 3 s.h.
282:117 Dance Theory 3 s.h.
282:116 Criticism of Dance 3 s.h.
282:204 Seminar Dance 2 s.h.
282:302 Seminar: Perspectives of Human Movement 3 s.h.
282:403 Thesis 3-4 s.h.
282:107 Major Modern Dance I 2 s.h.
282:108 Major Modern Dance II 2 s.h.
282:109 Major Ballet I 2 s.h.
282:110 Major Ballet II 2 s.h.

Total 28-29 s.h.

Elevee courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the advisor.

Facility
The facility represents diversified backgrounds and specializations, their abilities and interests are complementary. Most faculty members hold advanced degrees, several having educational backgrounds from abroad, and all are experienced teachers. Graduate faculty members have experience in research and writing and are available to guide graduate students in their areas of specialization. Many hold significant leadership positions and are frequently called on for lectures, speeches, and research presentations.

Facilities
Gymnastics, dance studios, special exercise rooms, and pools are used in the various programs in Bailey Gymnasium, North Hall, the Field House, the Recreation Building, and the recreation area at the Iowa Memorial Union. A field for outdoor sports is near Bailey Gymnasium. The proximity of the Iowa River makes canoeing instruction feasible in a regular class schedule. The archery range is located along the river in a rustic setting. outdoor fields and a track are available. The University golf course is used for some classes.

Courses
Physical Education—Primarily for Undergraduates
182:10 Athletic Physical Education 1 s.h.
182:20 Supplemental Physical Education 1 s.h.
182:24 Training in Physical Education 1 s.h.
182:80 Water Safety Instruction 1 s.h.
282:20 Techniques of Physical Education 2 s.h.
282:21 Orientation in Physical Education or Dance 1 s.h.
282:23 Teaching of Sports 2 s.h.
282:14 Laboratory in Teaching of Sports 1 s.h.
282:25 Teaching of Dance 2 s.h.
282:30 Laboratory in Teaching of Dance 2 s.h.
282:38 Teaching of Technique I 2 s.h.
282:39 Teaching of Technique II 2 s.h.
282:40 Teaching of Technique III 2 s.h.
282:50 Teaching of Technique IV 2 s.h.
282:51 Teaching of Technique V 2 s.h.
282:109 Major Ballet I 2 s.h.
282:110 Major Ballet II 2 s.h.

Total 26-29 s.h.

Elective courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the advisor.

Graduate Program in Dance
The Master of Arts degree in physical education (dance specialization) is awarded on completion of at least 30 semester hours of graduate work including thesis.

Prerequisites
Audition
282:75-76 Composition I-II 4 s.h.
282:80 Anatomy 3 s.h.
282:81 Kinesiology 3 s.h.
282:20 Rhythmic Analysis of Dance 2 s.h.
282:30 Beginning Modern Dance 3 s.h.
282:31 Intermediate Dance History: Primitive to Nineteenth Century 3 s.h.

Required Courses
282:17 Ballet Pedagogy 3 s.h.
282:38 Teaching of Modern Dance 2 s.h.
282:37 Teaching of Technique I 2 s.h.
282:174 Composition IV 2 s.h.
282:177 Beginning Laboratory 3 s.h.
282:115 Twentieth-Century Dance 3 s.h.
282:117 Dance Theory 3 s.h.
282:116 Criticism of Dance 3 s.h.
282:204 Seminar Dance 2 s.h.
282:302 Seminar: Perspectives of Human Movement 3 s.h.
282:403 Thesis 3-4 s.h.
282:107 Major Modern Dance I 2 s.h.
282:108 Major Modern Dance II 2 s.h.
282:109 Major Ballet I 2 s.h.
282:110 Major Ballet II 2 s.h.

Total 28-29 s.h.

Elective courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the advisor.

Faculty
The faculty represents diversified backgrounds and specializations, their abilities and interests are complementary. Most faculty members hold advanced degrees, several having educational backgrounds from abroad, and all are experienced teachers. Graduate faculty members have experience in research and writing and are available to guide graduate students in their areas of specialization. Many hold significant leadership positions and are frequently called on for lectures, speeches, and research presentations.
26.12 History and Philosophy of Physical Education

The history of physical education and sport from primitive cultivation through America to the twentieth century.

26.12 Practice in Adult Fitness

Principles and practices of exercise for adults, including exercise for seniors, weight control, and risk reduction.

26.12 General Education and Athletics

Overview of the teaching-learning process in physical education, including teaching styles and principles of motor learning. (Offered fall semesters, June to January.)

26.12 Administration of Physical Education and Athletics

Public relations, legal liability, evaluation and research management.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>205-15</td>
<td>Major I (Interim major)</td>
<td>3.0</td>
</tr>
<tr>
<td>205-20</td>
<td>Beginning Jazz</td>
<td>3.0</td>
</tr>
<tr>
<td>205-25</td>
<td>Beginning Jazz</td>
<td>3.0</td>
</tr>
<tr>
<td>205-30</td>
<td>Advanced Jazz</td>
<td>3.0</td>
</tr>
<tr>
<td>205-10</td>
<td>Intermediate Jazz</td>
<td>3.0</td>
</tr>
<tr>
<td>205-15</td>
<td>Major I (Interim major)</td>
<td>3.0</td>
</tr>
<tr>
<td>205-20</td>
<td>Beginning Jazz</td>
<td>3.0</td>
</tr>
<tr>
<td>205-25</td>
<td>Beginning Jazz</td>
<td>3.0</td>
</tr>
<tr>
<td>205-30</td>
<td>Advanced Jazz</td>
<td>3.0</td>
</tr>
<tr>
<td>205-10</td>
<td>Intermediate Jazz</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**Dance for Undergraduates and Graduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>205-100</td>
<td>Dance 1: Aria for Handklapper</td>
<td>0.5</td>
</tr>
<tr>
<td>205-200</td>
<td>Major I (Interim major)</td>
<td>1.5</td>
</tr>
<tr>
<td>205-250</td>
<td>Major I (Interim major)</td>
<td>1.5</td>
</tr>
<tr>
<td>205-300</td>
<td>Major I (Interim major)</td>
<td>1.5</td>
</tr>
<tr>
<td>205-100</td>
<td>Major I (Interim major)</td>
<td>1.5</td>
</tr>
<tr>
<td>205-200</td>
<td>Major I (Interim major)</td>
<td>1.5</td>
</tr>
<tr>
<td>205-250</td>
<td>Major I (Interim major)</td>
<td>1.5</td>
</tr>
<tr>
<td>205-300</td>
<td>Major I (Interim major)</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Physical Therapy**

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

**Physician Assistant Program**

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

**Physics and Astronomy**

Chair: Dwight R. Nicholson


Professor emeritus: Edward R. Nelson, James A. Van Allen

Associate professors: Robert L. Merlinton, Wayne P. Polyanski, Steven R. Spears

Assistant professor: John A. Gourley, Paul D. Rücker, Charles R. Newman

Degree programs: Bachelor of Science, and B.S., M.S., and Ph.D. in physics (including specialization in astronomy).
The Department of Physics and Astronomy provides comprehensive and rigorous instruction in all basic aspects of its subjects. It also provides research facilities and guidance for individual scholarly work at an advanced level in selected specialties. Total departmental enrollments typically are 2,500 student registrations during each semester of the academic year and 200 during the summer session. All courses and advanced laboratories are taught by full-time faculty members. Senior faculty members teach the elementary courses and supervise associated laboratories.

Beyond the elementary level, typical course enrollments are 20; there is ample opportunity for individual work. Special introductory courses are offered for majors in physics and astronomy and for others with special interest in these subjects. There are about 10 undergraduate majors—10 of whom are honor students—and 35 graduate students in physics or astronomy.

About 40 percent of graduates with bachelor's degrees pursue advanced study. Others find positions in secondary school teaching and in government and industrial laboratories, or use their training as the basis for careers in other fields.

Graduates with M.S. or Ph.D. degrees in physics or astronomy have many opportunities for employment in universities, colleges, and research laboratories in government and industry.

Undergraduate Programs

The department offers the following programs in physics: Bachelor of Science and Bachelor of Arts degrees and an undergraduate minor. It offers the same programs in astronomy. In addition, a double major in physics and astronomy is offered. Each program is described below.

Bachelor of Science in Physics

The Bachelor of Science program provides preparation for graduate study in physics and related sciences or for employment in research laboratories. The following courses or their equivalents are required for the Bachelor of Science degree with a major in physics:

- 22M25-26 Calculus I-II
- 22M27 Introduction to Linear Algebra
- 22M28 Calculus III
- 22M40 Matrix Algebra for Engineers
- 22M41 Differential Equations for Engineers
- 22M42 Vector Calculus for Engineers
- 2417-18 Introductory Physics I-II
- 2911 Intermediate Mechanics
- 2916 Introductory Quantm Mechanics
- 2919 Statistical Mechanics
- 29120-130 Electricity and Magnetism
- 29132 Intermediate Laboratory (two sessions)

Two additional courses, one of them at the 300-level, selected from:

- 22M17 Optics
- 22M18 Electronics
- 22M12 Intermediate Laboratory (third semester)
- 22M17 Mathematical Methods of Physics
- 22M10 Atomic Physics
- 22M12 Elementary Particles and Nuclear Physics
- 22M123 Introductory Solid State Physics
- 22M154 Plasma Physics

An additional 5 semester hours of introductory course work in another science or engineering field, including computer science but not mathematics.

Undergraduate majors who plan to pursue graduate study are advised to go beyond the minimum requirements given above to the greatest feasible extent, including further work in mathematics.

Bachelor of Arts in Physics

The Bachelor of Arts program is designed for students who wish to major in physics but do not plan to research-oriented career in physics. This degree program is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. 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 degree with a major in physics:

- 22M25-26 Calculus I-II
- 22M35-36 Engineering Calculus I-II
- 22M17-18 Introductory Physics I-II
- 22M11-12 College Physics
- 2919 Introductory Physics III
- 29112 Intermediate Mechanics
- 29118 Statistical Physics
- 29128 Electronics
- 29129 Electricity and Magnetism
- 22M32 Intermediate Laboratory (two sessions)

As an additional 12 semester hours or more of sciences in a thematic area as approved by the student's advisor or the course work required for teacher certification.

Minor in Physics

A program of physics courses satisfying the 15 semester hours required for a minor by the College of Liberal Arts must include 12 semester hours of upper-level physics courses taken at The University of Iowa, including 29119 and all 100-level physics courses.

Bachelor of Science in Astronomy

A balanced and integrated program of astronomy, mathematics, and physics courses is required for the Bachelor of Science degree in astronomy. The purpose of this program is to prepare the student for a career or advanced study in astrophysics, radio astronomy, or space astronomy.

The following courses or their equivalents are required for the Bachelor of Science degree with a major in astronomy:

- 22M25-26 Calculus I-II
- 22M27 Introduction to Linear Algebra
- 22M35-36 Engineering Calculus I-II
- 22M40 Matrix Algebra for Engineers
- 22M41 Differential Equations for Engineers
- 29111-12 Introductory Physics I-II
- 29113 Intermediate Mechanics
- 29119 Introductory Quantum Mechanics
- 29112-13 Introduction to Astrophysics
- 29115 Atomic Physics
- 29116 Elementary Particles and Nuclear Physics
- 29118 Statistical Physics
- 29128 Electricity and Magnetism
- 22M32 Intermediate Laboratory (two sessions)

Undergraduate majors who plan to pursue graduate study are advised to go beyond the minimum requirements listed above as feasible, by taking one or more of the following courses:

- 22M23 Optics
- 22M36 Statistical Mechanics
- 22M31 Introduction to Astrophysics
- 22M33 Astronomical Laboratory (additional semester)
Bachelor of Arts in Astronomy

The Bachelor of Arts degree program is designed for students who wish to gain considerable knowledge of astronomy but who do not plan a research-oriented career in astronomy. This degree program is appropriate for those planning careers in secondary-school science teaching, technical writing, and science-related administration. 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 degree in astronomy:

- 22M:25-26 Calculus I-II
- 22M:33-34 Engineering Calculus I-II
- 29:17-19 Introductory Physics I-II
- 29:11-12 College Physics

Minor in Astronomy

The 15 semester hours of courses required for a minor in the College of Liberal Arts must include 6 semester hours selected from the following:

- 22M:11-12 Introduction to Astrophysics I-II
- 22M:13-14 Astronomical Laboratory

Double Major in Physics and Astronomy

Students may obtain a double major in physics and astronomy. Those interested in such a combination should consult with their advisors. The major requirements of the College of Liberal Arts, see the "College of Liberal Arts" section of the Catalog.
Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. Two Van computers are available within the department, and the associated facilities of the University's Van Computing Center are available for research by students and staff of the department. The central machine shop is fully equipped and staffed with skilled instrument makers and machinists, and there are several electronics and machine shops for the use of advanced students and the research staff.

Experimental research is conducted in acoustics of musical instruments, astronomy (optical and radio), atomic and molecular physics, elementary particle physics, laser physics, low energy nuclear physics, plasma physics, and solid state physics. A major astronomical space physics program is conducted in the department. Extensive facilities are available for construction of equipment for satellites and spacecraft, for reception of satellite telemetry, and for computerized decoding and analysis of data.

An unusually versatile 6-kW Van de Graaff accelerator, which has been modified for energies up to 14 MeV, is used in studies of nuclear reactions induced by hydrogen, helium, lithium, and beryllium nuclei. Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, and compounds are included in the experimental solid state program, as are surface studies of metals and semiconductors. Several experimental plasma devices, including a linear and a circular machine, are used to study confinement, nonlinear wave, and turbulence phenomena in low-temperature, steady-state plasmas. A variety of laser spectroscopic and molecular beam studies are carried out at the Iowa Laser Facility. Experimental research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Los Alamos National Laboratory, and at other accelerators.

The department is well equipped for research in observational astronomy. The primary optical instrument, a 24-inch reflector with a computer-controlled photocathode, is used for stellar, planetary, and cometary studies. Research programs in galactic and extragalactic radioastronomy are carried on using an 18.3-meter parabolic reflector located at the North Liberty Radio Observatory in Iowa City, one of the radioastronomes in the U.S. Very Long Base Line Interferometer Network. Current long-term research activities include studies of extragalactic radio sources and OH masers. Students and faculty also conduct research programs at the Very Large Array, the National Radio Astronomy Observatory, the Giacobottini Observatorium, the Abell Observatory, and the Inland Telescope Facility.

Active theoretical research is carried on in atmospheric, atomic, and molecular physics, elementary particle physics, nuclear physics, plasma physics, solid-state physics, and space physics.

Courses

Prerequisites and concomitants are specified as guiding and may be waived by the instructor. Students may not repeat an elementary course for credit or grade points if they already have completed a higher level course for which the elementary course, or its equivalent, is a prerequisite. Courses 25, 25b, 25i, 112, 114, 116, 25d, and 25e are accepted toward the College or Liberal Arts General Education Requirements in the natural sciences.

Physics—Primarily for Undergraduates

25000 Complementary Education 0 s.h.
251 Classical and Modern Physics of the Atom 3 s.h.
252 General Physics 3 s.h.
254 A Supplement to Modern and Contemporary Theoretical Physics 1 s.h.
256 Modern Physics 3 s.h.
259 Advanced Quantum Mechanics 3 s.h.
25b Classical and Modern Physics of the Atom 3 s.h.
25d Introduction to Physics for Natural Scientists 3 s.h.
25h Introduction to Physics for Social Scientists 3 s.h.
25i General Physics 3 s.h.
25k General Physics 3 s.h.
25l General Physics 3 s.h.
25m General Physics 3 s.h.
25n General Physics 3 s.h.
25o General Physics 3 s.h.
25p General Physics 3 s.h.
25q General Physics 3 s.h.
25r General Physics 3 s.h.
25s General Physics 3 s.h.
25t General Physics 3 s.h.
25u General Physics 3 s.h.
25v General Physics 3 s.h.
25w General Physics 3 s.h.
25x General Physics 3 s.h.
25y General Physics 3 s.h.
25z General Physics 3 s.h.
Astronomy—Primarily for Undergraduates

20.14 Modern Astronomy 3.0
Survey of astronomy; special attention to topics of current interest, such as planetary explorations, solar system, pulsars, black holes, and cosmology. Classroom laboratory seminars for astronomical observation and problem solving. Open to freshmen. (Same as 25.14.)

25.14 General Astronomy 4.0
Descriptive lectures and study of astronomical techniques and all of components of solar system: sun, earth, asteroids, comets, planets and satellites, stars, comets, meteorites, and gamma rays. Laboratory and classroom work also included. Three lectures, one laboratory and one recitation period each week. Prerequisites: Physics 1 or 25.20 (which is not apportioned). May be taken for 3 or 4 credits as a part of 25.20. Prerequisites: at least one year each high school algebra and geometry.

25.94 Reading in Astronomy 4.0
Astronomy—For Undergraduates and Graduates

25.16 Reading in Astronomy 4.0

25.19 Introduction to Astrophysics I 3.0
Fundamentals of astrophysical processes in solar system, laboratory, star, nebula, the interstellar medium, and the intergalactic medium. Spectroscopy of the sun and stars, stellar and galactic kinematics, stellar evolution, the Milky Way, cosmology, and dark matter. Prerequisite: Physics 1 or 25.20 (which is not apportioned). May be taken for 3 or 4 credits as a part of 25.20. Prerequisites: at least one year each high school algebra and geometry.

25.16 Reading in Astronomy 4.0

Astronomy—Primarily for Graduates

25.28 Theoretical Astrophysics I 3.0
Radiative transfer theory, theory of stellar atmospheres, and cooling and heating of stars, including a treatment of elements and objects of solar type and in stars of main sequence. Prerequisite: consent of instructor.

25.28 Theoretical Astrophysics II 3.0
Interstellar medium, nuclear, radio, and gamma-ray radiation. Continuation of 25.28.

25.29 Stellar Structure and Evolution 3.0
Structures of stellar interiors; nucleosynthesis in stars and evolution of stars. Prerequisite: consent of instructor.

25.35 Special Topics in Astrophysics 2.0
Advanced lecture course on current topics in astrophysics. May be repeated.

25.98 Seminar in Astrophysics 1.0
Seminar on current research.

25.27 Research in Astronomy 2.0
Research in observational and theoretical astrophysics.

Political Science

Major requirements for the B.A. in political science are the same as for the B.S., except that two semesters of college-level courses (or the equivalent) in foreign language are required, and the student must take three semesters of mathematics or statistics. Courses recommended for the mathematics/statistics requirement:

22M:25-26 Calculus I-II

225:102 Introduction to Statistical Methods

225:148 Intermediate Statistical Methods

Other courses may be used with the written approval of the political science director of undergraduate studies.

Teaching Major

Undergraduates planning to teach in the social sciences with an emphasis on political science must meet these requirements:

Twenty semester hours of political science, including 30.1 Introduction to American Politics, two of the following introductory courses—30.50, 30.60, 30.50, 30.60, and 11 semester hours of political science courses numbered above 100.

Twelve semester hours of courses in each of two of these areas: American history, world history, economics, geography, and sociology. Twenty semester hours are required for psychology as a related field.

Completion of the sequence of professional education courses leading to certification (see the "College of Education" section of the Catalog)

Honor"s

The program leading to a B.A. degree with honors in open is limited to a number of students with a minimum general grade-point average of 3.2. To graduate with honors, students must maintain at least a 3.2 grade-point average in political science and a general grade-point average of at least 3.2. Honors students must take 30.180 Honors Introduction to Political Inquiry and must complete at least two semesters of work in the 30.182-183 Honors Seminar, with a grade of B or better each semester. Students may substitute one semester of 30.184 Honors Senior Research Project for one of the seminars of the advanced Honors Seminar. Students must check with their honors advisor before making substitutions. Students interested in seeking a B.A. degree with honors should contact the College of Liberal Arts Honors Program and the departmental honors advisor prior to the beginning of the junior year.

Minor

To receive a minor in political science students must take 15 semester hours in political science courses, 12 of which must be taken in courses at The University of Iowa numbered 30.100 and above. Credit in courses numbered 105, 151, and 200 in political science cannot be applied to the minor.
Graduate Programs

At the graduate level, the department has a program leading to the Doctor of Philosophy degree in political science, which is particularly appropriate for students planning a scholarly academic career. The Master of Arts in Public Affairs is designed for students preparing for careers in government service, public affairs, or civic education teaching in secondary schools of junior and community colleges. The general M.A. degree usually is pursued by persons whose ultimate degree objective is the Ph.D.

Master of Arts in Public Affairs

Although all students in the public affairs program must take the core courses in the schedule below, elective opportunities make possible several areas of specialization. Students are encouraged to take electives in a single subject (but not necessarily in a single department). Available areas are international relations, personnel management and labor relations, public policy analysis, and quantitative methods in management. Students planning the elective program should consult with the director of the M.A. in public affairs program.

The M.A. in public affairs is a nonthesis program. Students must complete at least 36 semester hours of course work with at least a 2.0 grade-point average. Students may pass a written final examination. Although the schedule suggested below implies completion within 18 months, the program is sufficiently flexible to accommodate students who may require additional time to meet degree requirements.

Fall Semester
30:222 Public Policy Analysis I 3 s.h.
30:228 Introduction to Administrative Computing 3 s.h.
62:301 Introduction to the Government Sector 5 s.h.
Electives 8 s.h.

Spring Semester
30:226 Administrative Theory and Public Policy 3 s.h.
30:225 Urban Administration 3 s.h.
30:223 Public Policy Analysis II 3 s.h.
Electives 6 s.h.

Summer Session
30:351 Internships in Public Policy and Administration 3 s.h.
or 30:352 Practicum in Public Policy and Administration 3 s.h.
Elective 3 s.h.
Total 36 s.h.

Master of Arts with Thesis

Except for the M.A. in public affairs and the M.A. offered under a joint program with the College of Law (see the College of Law section of the Catalog), the department usually offers the M.A. only as a preliminary step toward the Ph.D.

Students seeking the M.A. degree by completing at least 30 semester hours with a grade-point average of at least 3.0, submitting a thesis, and passing a final oral examination, may receive an M.A. degree in political science. The final oral examination covers both thesis and course work.

Master of Arts without Thesis

The first-year evaluation committee finds that a student's course work and research papers provide sufficient evidence of the research and writing skills ordinarily demonstrated in a master's thesis, it may recommend that the student be allowed to proceed with a doctoral program without writing a master's thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.0, and review of the student's record by a final examination committee which may waive the final oral examination.

The same requirements apply where a first-year evaluation committee finds that the quality of a student's work is inadequate for recommending continuation toward the Ph.D. but adequate for proceeding with the master's program. The committee may recommend that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy

All doctoral students must acquire a level of competence in quantitative methods. This requires a thorough grounding in applied multivariate statistics, which is demonstrated by taking 30:351 advanced research methods and receiving a grade no lower than B. Any special tools or skills needed for fulfilling dissertation research—e.g., foreign languages, econometrics, or experimental design—must be acquired before taking comprehensive examinations. Students who are unfamiliar with the skills involved should consult with their faculty adviser in the first two years of Ph.D. work.

Comprehensive Examination

Students must take the comprehensive examination after completing the seventh semester of graduate work, or at the beginning of the examination period following their attainment of 48 hours of graduate credit, whichever comes later. Candidates for the Ph.D. take written examinations in three areas:

American politics and public policy

Comparative politics

International politics

Political theory

Before taking the written examinations, candidates must present a written dissertation proposal. They must explain and defend the proposal in an oral examination, which also may deal with all matters relevant to the written examinations and the areas they cover.

Ph.D. candidates in political science must acquire at least four semesters of special supervised training in teaching and research. This instruction usually is given in association with the student's association as a teaching or research assistant.

A comprehensive statement of all departmental requirements is set forth in the Guide to Graduate Study in Political Science. For general graduation and degree requirements, see the 'Graduate College' sections of the Cataloging.

Facilities

The Laboratory for Political Research provides logistical and technical support for undergraduate and graduate teaching and research programs undertaken by the Department of Political Science. The laboratory assists faculty members in utilizing quantitative data and the computer for their undergraduate and graduate teaching and research programs undertaken by the Department of Political Science. The laboratory assists faculty members in utilizing quantitative data and the computer for their undergraduate teaching and research programs undertaken by the Department of Political Science. The laboratory assists faculty members in utilizing quantitative data and the computer for their undergraduate teaching and research programs undertaken by the Department of Political Science.

The Social Science Data Archive holds more than 450 data collections, and the laboratory is a user contact site for data from the 1979 United States Census. The laboratory also supervises the College of Liberal Arts Computer Terminal Center for the social sciences.

The Comparative Legislative Research Center of the Department of Political Science was established to promote comparative studies of legislative institutions and behavior in a wide variety of political systems. The main activities of the center include bibliographic and archival work, data collection, collaborative research with foreign scholars, training of students in comparative research, conferences and seminars, and publication of research. The center also publishes the Legislative Studies Quarterly.

Courses

30:200 Cooperative Education Training 3 s.h.

30:301 Introduction to American Politics 3 s.h.

30:302 American Politics and Political Institutions 3 s.h.

30:303 American Politics and Political Institutions, including Congress, the Presidency, the Supreme Court system, interest groups, and the bureaucracy. Discussion of the funding and
Undergraduate Programs
The B.A. and B.S. degree programs in psychology are designed to contribute to a student's general liberal education and to provide a foundation for postbaccalaureate training in psychology and closely-related disciplines and in areas such as business, medicine, law, and communications. Students who intend to enter the job market immediately after completing an undergraduate degree are well-advised to complement their psychology major with substantial preparation in another program more closely tied to the world of work e.g., education, social work, journalism. Almost all vocational opportunities in psychology require advanced degrees.

The B.S. program is intended for students planning to pursue advanced work in psychology or in a related discipline. It includes requirements for specific courses in statistics and in experimental psychology, as well as other requirements in mathematics and natural science. The B.A. program has somewhat fewer specific requirements and rather less formal emphasis on methodology. Both programs leave ample time for students to combine psychology with another discipline or program. Students who shift to a psychology major after two years of undergraduate work may find they do not have the background for the B.S. program. These students may wish to enroll in the B.A. program with courses in statistics and experimental psychology if they intend to pursue graduate work in psychology or in a related field.

Students in either program begin with a general introductory course, followed by one or more methodology courses and electives in several broad areas of psychology: animal learning and learning processes, child and developmental, clinical counseling and social. Students are required to complete one of the following: B.A. or B.S. degree in psychology automatically satisfy the lower-division hours of the General Education Requirement in social science.

The department maintains excellent facilities to support teaching and research on human and animal behavior. All faculty members are actively engaged in research and bring to their teaching the enthusiasm for the excitement that such activity generates. Many opportunities are provided for interested and capable students to participate in research projects being carried on in the department. The department has an active undergraduate research organization, the Iowa Student Psychological Association, that is open to all interested students. The group sponsors speakers, film, career days, student symposia, and also has a local chapter of Psi Chi, the national undergraduate organization of the American Psychological Association.

Bachelor of Arts
Students must satisfy the general College of Liberal Arts requirements for the B.A. degree and must complete at least 28 semester hours in psychology. At least 15 semester hours of the major must be completed in this department.

The B.A. program must include the following courses, or equivalents: 3.1 Elementary Psychology, 3.3 General Psychology, 3.43 Evaluating Psychological Research: one elective course from four of the five area elective groups below, with at least two of these four area electives in 300-level courses.

The 3.43 requirement may be satisfied by a combination of 3.142 Introduction to Statistics in Psychology and 3.120 Experimental Psychology I, or equivalents. This alternative is strongly recommended to students in the B.A. program who plan to pursue graduate work in psychology or a related area.

Bachelor of Science
Students must satisfy the general College of Liberal Arts requirements for the B.S. degree and must complete at least 30 semester hours of credit in psychology. At least 15 semester hours of the major must be completed in this department.

The B.S. program must include the following courses, or equivalents: 3.1 General Psychology or 3.1 Elementary Psychology, 3.42 Introduction to Statistics in Psychology, 3.120 Experimental Psychology I, 3.121 Experimental Psychology II; one elective course from each of the five area groupings given below, with at least four of these five area electives in 300-level courses.

Candidates for the B.S. degree in psychology are expected to satisfy the General Education Requirement in natural sciences in one of the following ways: one semester of chemistry and one semester of biology; two semesters of chemistry; two semesters of physics; one semester each of chemistry and physics B.S. majors also must complete at least one semester of calculus. In such cases this will include at least one pre-calculus mathematics course. Students should consult with their advisor concerning specific courses that will satisfy these requirements.

Minor
A minor in psychology is an attractive option to students from a variety of disciplines. At least 12 of the 15 semester hours must be in upper-level courses in this department. This includes all 100-level courses and 3.43. Any 300-level courses and 3.43. Any 300-level courses. A minor in psychology is an attractive option to students from a variety of disciplines.

Area Electives
Area offerings vary somewhat from semester to semester. Prior to each registration period, students should check the latest version of the brochure, Undergraduate Psychology at Iowa, and the current Schedule of Courses.

Animal Learning and Biopsychology
3.17 Introduction to Comparative Psychology 3 s.h.
3.123 Psychology of Learning 3 s.h.
3.125 Psychobiology: Psychology and Psychology 3 s.h.
31.128 Introduction to Behavioral Pharmacology 3 s.h.
31.129 Biological Aspects of Behavior 3 s.h.
31.132 Motivation 3 s.h.
31.135 Principles of Behavioral Analysis 3 s.h.

Child and Developmental Psychology

31.144 Introduction to Child Psychology 3 s.h.
31.103 Development of Children's Social Behavior 3 s.h.
31.114 Cognitive Development of Children 3 s.h.
31.117 Psychological Processes in Reading 3 s.h.
31.129 Perceptual Development 3 s.h.
31.148 Individual Differences in Developmental Psychology 3 s.h.
31.146 Behavior Disorders in Children 3 s.h.

Clinical Psychology

31.133 Introduction to Clinical Psychology 3 s.h.
31.105 Personality 3 s.h.
31.141 Schizophrenia 3 s.h.
31.142 Depression and Mania 3 s.h.
31.143 Abnormal Psychology 3 s.h.
31.144 Behavior Disorders in Children 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.
31.113 Language Processing 3 s.h.
31.127 Memory and Cognition 3 s.h.
31.128 Psychology of Thinking 3 s.h.
31.133 Perception 3 s.h.
31.147 Introduction to Psychological Measurement 3 s.h.
31.155 Human Factors Engineering 3 s.h.

Social Psychology

31.154 Social Psychology 3 s.h.
31.103 Development of Children's Social Behavior 3 s.h.
31.106 Attitude Change 3 s.h.
31.107 Industrial/organizational 3 s.h.
31.108 Small Group Processes 3 s.h.
31.111 Social Cognition 3 s.h.

*These courses may be counted in either—
but not both—of the areas indicated.

Honor

The department has an active honors program open to majors with at least a 3.3 grade-point average in psychology courses and at least 3.2 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are selected to participate in the department's 31.195 Honors Seminar in Psychology during the spring semester of the junior year.

Consult major offices to contact the department honors advisor early in the junior year.

Graduate Program

The graduate program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special circumstances, applications are considered only for the Ph.D. degree. For students entering without previous graduate work, it is possible to progress, with previous graduate training, to 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 endeavors, 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 behavior, familiar with fundamental knowledge about behavioral 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. Prospective applicants should understand that the number of positions appropriate for graduates of this program is limited and that the competition for available openings is fairly intense.

Graduate training is organized in the broad training areas: animal learning and biopsychology, child and developmental psychology, cognitive psychology, comparative psychology, health and behavioral science, and social psychology. Each entering student is expected to identify one or more of these training areas and to develop a program that develops through understanding of the substantive material and methods of investigation central to that specialization. While all students in psychology training, all students must meet course requirements in statistics, research methods, training, and six core content areas other than the primary one.

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 interest dictates. A joint program involves linking 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 special training is any of the following interest areas: human factors, aging, organizational and consumer behavior, communication, and behavioral medicine. Preparation in one of these interest areas involves some special advanced seminars within the department, directed 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. degree requires satisfactory completion of at least 72 semester hours of graduate work in psychology, including at least 33 semester hours in this department. All students must satisfy, through one of several options, requirements in statistics and research methods, and in learning. A course in the history and theory of psychology is strongly encouraged. Students also are expected to take sufficient course work outside the privacy training area to develop a reasonably broad background in the discipline of psychology as a whole. The nature of these requirements and their placement in the graduate program varies somewhat among the training areas and depends on the individual student's background and interests.

During each of the first three semesters, graduate students ordinarily take three courses, e.g., a general core course, a course in a primary training area, and an outside area elective. Students also become familiar with the literature, research strategies, and special techniques in one or more research areas through engagement in individually supervised research projects. This research participation, which may be with one faculty member all year long or with a different faculty member each semester, is designed to help students develop, by early in the second year, a reasonably detailed plan for the master's research project.

By the end of the second year—certainly very early in the third year—students are ready to make a formal proposal of their dissertation project and defend the thesis. At this point, Ph.D. candidates are generally on a faculty-wide review of the student's overall record of performance on the M.A. project, as well as in teaching, research, and service activities. During the third year students continue selected course work in the training and introduction to develop a prospectus for the dissertation research, and prepare for the comprehensive examination. This written examination tests the student's knowledge of all five specialty and related areas and ordinarily is given at the beginning of the fourth year. The fourth year is devoted primarily to advanced seminars and to conducting the Ph.D. study and preparing the dissertation. In the fifth and final year, students offer an oral defense of the dissertation and are expected to relate the dissertation work to broader issues in the discipline of psychology.

Master of Arts with Thesis

As indicated above, the department does not offer a program of the Master of Arts with thesis in psychology. In all other respects, however, the Master of Arts degree with thesis is a requirement for students preparing for the Ph.D. This degree requires satisfactory completion of at least 33 semester hours of graduate course work in psychology with at least 9 hours in the major department. The course work must include a statistics
Master of Arts without Thesis

The Master of Arts degree without thesis is in option available to those low students who terminate their work in the department after four semesters. This degree requires satisfactory completion of at least 36 semester hours of graduate credit in psychology, including at least 24 semester hours in this department. The course work must include a statistics sequence, a learning course, and at least one course outside the primary area. Students also must pass successfully on a written examination covering the area of specialization.

Graduate Training Areas

Animal Learning and Biophysics

The focus of the program in animal learning and biophysics is on the analysis of learning and motivation, primarily in nonhuman subjects, through the application of behavioral and biophysical principles. Special faculty strengths are in classical and operant conditioning, comparative psychology, motivation, pharmacology, biochemistry, and molecular biology. The program has the opportunity to train in-state and out-of-state students in computer-controlled experimentation and electronic instrumentation, and modern analytic and laboratory methods in neurochemistry, neuropharmacology, and biophysical analysis. Faculty members in the animal learning and biophysics area interact extensively with colleagues from a number of basic science departments in the College of Medicine. These collaborative activities provide excellent research and training opportunities for students interested in developing interdisciplinary fields such as behavioral medicine and neurobehavioral science.

Child and Developmental Psychology

Students in the child and developmental psychology program are expected to acquire a broad understanding of children's development in the social, cognitive, and perceptual domains. As the training program proceeds, students may focus their preparation on any of these broad areas, or may choose to develop a more particular specialization in areas such as learning, memory, the development of social judgment, communication, and abnormal development. Most of these specializations require substantial preparation in at least one of the other training areas in the department. This program does not have a specific life-span focus, but several faculty members are involved in research on aspects of aging and can provide supervision for students interested in this area. Faculty members in the child and developmental psychology program have close contacts with colleagues from the Department of Psychiatry and Neurology, the College of Education, and the Department of Pediatrics; these relationships can be useful to students who wish to gain additional background in developmental aspects of communication or behavioral medicine.

Clinical Psychology

The clinical training program, itself approved by the American Psychological Association, strongly emphasizes a scientific approach to the study of psychopathology. It is designed for students who are primarily interested in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the empirical investigation of such phenomena. Recognizing that students must become familiar with clinical material and competent in the application of clinical skills, the department closely integrates practical experience in the Carl E. Seashore Psychiatric Clinic with course work and supervised research experience. Students in the clinical program may develop special competence in areas such as psychopharmacology, personality, neuropsychology, affective disorders, behavioral and cognitive therapies, sexual dysfunctions, and child psychology. Faculty members collaborate actively with colleagues from departments such as psychiatry, neurology, statistics and biometry, and from area education agencies. The program has a substantial number of clinical training programs that lead to specialty training in behavioral medicine and aging are interested in areas in which a number of clinical faculty members are prepared to offer research supervision. Within the department joint training programs in clinical-child and developmental psychology, clinical-cognitive psychology, and clinical health and behavioral science have been established. Similar joint programs combining clinical specialty with work in other specialty areas are encouraged.

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 transcript must successfully complete a one-year internship at an approved agency before receiving the doctoral degree. The internship opportunities come after completion of all course work and of most, if not all, of the dissertation project.

Health and Behavioral Sciences

The health and behavioral Science program is designed to prepare students to engage in research in the behavioral and biological areas. The program emphasizes study in the areas of methodology and statistics, the physiological bases of behavior and neurological and muscular systems, neuropsychology, psychopharmacology, and communication processes, including behavioral and psychological effects of illness stressors. Students are involved in research throughout their tenure in the program. Faculty and students participate in a weekly seminar on research strategies and advances in health and behavioral science. To broaden research perspective and skills prior to beginning the dissertation, advanced students also train in an affiliated laboratory (research apprenticeship). Students in the health and behavioral science program may acquire specialized training for research and teaching in health areas such as cardiovascular psychophysiology and hypertension, internal medicine, diabetes, cancer, pain, sexual and reproductive behavior, learning and memory problems, and cognitive disorders, in test-making and communication regarding health status, personality, and the analysis of illness behavior. Collaborative research is maintained with faculty members in various departments of the College of Medicine, currently including the departments of Anatomy, Anesthesiology, Internal Medicine, Neurology, Obstetrics and Gynecology, Pediatrics, Pathology, Radiology, Surgery, and Dentistry.

Cognitive Psychology

Students affiliated with the cognitive—neuropsychological—clinical—neurobiological—program concentrate in the broad areas of learning, memory, and problem solving in children, adolescents, and adults, with specialization in neuropsychology, psychophysiology, and psychology. Students take courses in experimental psychology, the development of psychological science, and advanced topics in social psychology, and the history and methods of the social sciences. Their studies are designed to prepare them for professional work in a variety of areas, including human factors, communications, aging, and organizational and consumer behavior. Collaborative research is under way with faculty members from the College of Arts and Sciences, the School of Business Administration, the School of Health Services Research and Development, and from several departments including pharmacology, industrial and management engineering, speech pathology and audiology, and aesthetics.
Social Psychology
The social psychology program offers a variety of perspectives on social processes. Students develop some familiarity with all of the approaches but may focus their graduate training in any of five sub-areas: social psychology, philosophy, dealing with reciprocal influences of social and psychological systems; attitudes and social cognition; dealing with topics such as attitude acquisition and change, cognitive consistency, attribution, and persuasion; social influences on behavior, including social learning, social development, imitation, conformity, etc.; the social psychology of groups, dealing with cooperation and competition, group decision processes, social facilitation, and distraction; and socio-cognitive psychology, the study of social psychological aspects of clinical problems and processes.

Students in the social psychology area also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communications, human factors and Behavioral medicine. Such preparation, which ordinarily will involve selected course work outside the department, e.g., in the College of Business Administration or the Department of Communication Studies, and participation in special research projects, will broaden students' employment prospects.

Admission
The graduate program in psychology is designed primarily for those who wish to pursue the Ph.D. degree, all applicants are considered on this basis. Occasionally, a qualified applicant interested in advanced work only through the M.A. level may be admitted to pursue a joint graduate program involving psychology and other professional preparation. A person interested in such a program should contact the department chair before filing an application.

The deadline for applications is February 1. For Ph.D. applicants, the Graduate Record Examination (GRE) General Test must be taken, certainly no later than in December. The GRE in psychology is not required. Applications may be submitted at any time but are considered only once each year—between February 1 and March 15—for admission the following fall. Admission decisions are based on a composite consideration of prior academic performance, letters of recommendation, scores on the verbal, quantitative, and analytic sections of the GRE General Test, and the applicant's statement about background and purpose. Initial review of admission materials is done by faculty members in the applicant's primary interest area.

An undergraduate major in psychology—including a laboratory course in experimental psychology—a course in statistics, and additional work in the natural sciences is desirable, certainly is desirable though not required.

Students who have not had such a background but who are strongly qualified on other grounds may be admitted but will be expected to remedy deficiencies through special course work or independent study prior to embarking on the regular graduate program.

A student who has completed substantial graduate work at another institution at the time of admission to this program will be expected to present documents, such as the master's thesis or equivalent, which reflect significant engagement in research and scholarly writing. This material and the record of previous graduate course work will be reviewed by the faculty members of the appropriate training area as the basis for placement in the graduate program. In no instance will a student be permitted to complete substantial research or writing for a master's degree at another institution while a regular full-time student in the graduate program at the University of Iowa.

A foreign language is not required for admission, and there are no foreign language requirements for either the M.A. or the Ph.D. degree in psychology.

Financial Aid
All students admitted to the graduate training program in psychology are considered, on the basis of merit, for available financial support in the form of fellowships, teaching assistantships, research assistantships, internships, and tuition scholarships. No specific application for financial aid is required.

Faculty
National rankings of graduate psychology programs consistently have shown this department to be among the top 25 in the nation. The widely recognized commitment of the faculty to research and scholarship is well illustrated in the publication of some 100 articles, books, reviews, and book chapters each year. Many faculty members also are active as editors, associate editors, and regular consulting editors for major psychology journals.

Facilities
The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Spence Laboratories of psychology and adjoining space in Seashore Hall include a variety of laboratories, many heavily computerized, and for animal and human studies, three separate animal housing areas, a histology laboratory, observation suites with remote audiovisual control and recording equipment, soundproofed chambers, closed-circuit TV systems, electroencephalographic recording rooms, conditioning laboratories, the Carl E. Seashore Psychology Clinic, and well-equipped electronic, mechanical, and woodworking shops. A specially equipped research laboratory is available for use in studies conducted at schools and other locations.

The University's Weigl Computing Center currently is operating an IBM 2650, six PDP-8s, and two VAX 11780. Students and faculty have ready access to these systems through terminals in the department and through a satellite computer facility in Seashore Hall. Office space for graduate students and faculty is provided in Seashore Hall. The psychology branch of the University's Main Library is conveniently located at the west wing of Seashore Hall. The research and teaching activities of the department greatly benefit from the facilities and staff of other psychology and local agencies, including The University of Iowa Hospitals and Clinics, the Psychiatric Hospital, the Veterans Administration Medical Center, the University Counseling Service, the Child Development Clinic, the Wendt Johnson Speech and Hearing Clinic, the Health Services Research Center, and the School of Social Work Gerontology Program.

Courses
Primarily for Undergraduates
Other than 31.1 or 31.3 or equivalent, is prerequisite to all other courses in psychology. Only one of these two credits may be taken for each.

31.21 Behavioral Psychology
This multidisciplinary course in clinical psychology introduces students to the practice of behavioral therapy through exposure to the principles and techniques of behavior therapy. 3 s.h.

31.22 Introduction to Clinical Psychology
Survey course in clinical psychology designed to familiarize the reader with the major theoretical perspectives in the field and to acquaint them with the therapeutic techniques used in the treatment of psychological disorders. 3 s.h.

31.23 Introduction to Clinical Psychology
Survey course in clinical psychology designed to familiarize the reader with the major theoretical perspectives in the field and to acquaint them with the therapeutic techniques used in the treatment of psychological disorders. 3 s.h.

31.24 Introduction to Clinical Psychology
Survey course in clinical psychology designed to familiarize the reader with the major theoretical perspectives in the field and to acquaint them with the therapeutic techniques used in the treatment of psychological disorders. 3 s.h.

31.25 Introduction to Social Psychology
Research on behavior of individual human groups as factors in social environments, acquisition and maintenance of social roles, and influence of perception on social and conceptual processes. Social interactional, learning, and individual differences. 3 s.h.
36:125 Introduction to Musical Processes 3 a.b.
Survey of the study of individual human cognition; meaning of music to human mind; the role of music in everyday and social behavior; psychological and sociological implications of the study of music; emphasis on social and cultural dimensions of music.

36:115 Language Processing 3 a.b.
Study of language behavior in the context of evolution and development. Language production and perception: emphasis on speech behavior, with additional attention to the role of learning in language behavior. Emphasis on the psychological origins of language production and perception. Assignments may vary. Crosslisted: Psychology 311. Prerequisite: 311 or 315 equivalent.

36:113 Cognitive Development of Children 3 a.b.
Developmental research and theory concerning children's information processing, verbal concepts, thinking, and problem solving.

36:112 Psychology of Sex Differences 3 a.b.
An overview of the current theoretical and empirical research literature on sex differences in cognitive and social behavior, with particular emphasis on the role of psychological variables in understanding sex differences in human behavior.

36:117 Psychological Principles in Research 3 a.b.
Analysis of basic principles in the selection and measurement of cognitive, perceptual, and psychological processes and phenomena.

36:116 Memory and Cognition 3 a.b.
Introduction to contemporary psychological theories and research on short-term and long-term memory: processes, principles, and implications of cognitive processes and knowledge representations.

36:115 Perception 3 a.b.
Cultural, contextual, and perceptual factors in visual, auditory, and tactile perception. Emphasis on the role of context in perception.

36:114 Developmental Psychology I 3 a.b.
Laboratory study of some aspects of behavior in infancy, childhood, and adolescence: emphasis on development of cognitive abilities, social behavior, and language.

36:113Introductory Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:126 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:125 Introductory Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:121 Psychology of Aging 3 a.b.
An overview of the psychological issues of aging and the role of psychological factors in the aging process.

36:124 Introduction to Developmental Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:123 Psychological Principles in Research 3 a.b.
Analysis of basic principles in the selection and measurement of cognitive, perceptual, and psychological processes and phenomena.

36:127 Psychology of Personality 3 a.b.
Theories and research on the structure of personality and the development of personality traits.

36:126 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:122 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:121 Psychology of Aging 3 a.b.
An overview of the psychological issues of aging and the role of psychological factors in the aging process.

36:124 Introduction to Developmental Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:123 Psychological Principles in Research 3 a.b.
Analysis of basic principles in the selection and measurement of cognitive, perceptual, and psychological processes and phenomena.

36:127 Psychology of Personality 3 a.b.
Theories and research on the structure of personality and the development of personality traits.

36:126 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:121 Psychology of Aging 3 a.b.
An overview of the psychological issues of aging and the role of psychological factors in the aging process.

36:124 Introduction to Developmental Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:123 Psychological Principles in Research 3 a.b.
Analysis of basic principles in the selection and measurement of cognitive, perceptual, and psychological processes and phenomena.

36:127 Psychology of Personality 3 a.b.
Theories and research on the structure of personality and the development of personality traits.

36:126 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:121 Psychology of Aging 3 a.b.
An overview of the psychological issues of aging and the role of psychological factors in the aging process.

36:124 Introduction to Developmental Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:123 Psychological Principles in Research 3 a.b.
Analysis of basic principles in the selection and measurement of cognitive, perceptual, and psychological processes and phenomena.

36:127 Psychology of Personality 3 a.b.
Theories and research on the structure of personality and the development of personality traits.

36:126 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:121 Psychology of Aging 3 a.b.
An overview of the psychological issues of aging and the role of psychological factors in the aging process.

36:124 Introduction to Developmental Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:123 Psychological Principles in Research 3 a.b.
Analysis of basic principles in the selection and measurement of cognitive, perceptual, and psychological processes and phenomena.

36:127 Psychology of Personality 3 a.b.
Theories and research on the structure of personality and the development of personality traits.

36:126 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:121 Psychology of Aging 3 a.b.
An overview of the psychological issues of aging and the role of psychological factors in the aging process.

36:124 Introduction to Developmental Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:123 Psychological Principles in Research 3 a.b.
Analysis of basic principles in the selection and measurement of cognitive, perceptual, and psychological processes and phenomena.

36:127 Psychology of Personality 3 a.b.
Theories and research on the structure of personality and the development of personality traits.

36:126 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:121 Psychology of Aging 3 a.b.
An overview of the psychological issues of aging and the role of psychological factors in the aging process.

36:124 Introduction to Developmental Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:123 Psychological Principles in Research 3 a.b.
Analysis of basic principles in the selection and measurement of cognitive, perceptual, and psychological processes and phenomena.

36:127 Psychology of Personality 3 a.b.
Theories and research on the structure of personality and the development of personality traits.

36:126 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:121 Psychology of Aging 3 a.b.
An overview of the psychological issues of aging and the role of psychological factors in the aging process.

36:124 Introduction to Developmental Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.

36:123 Psychological Principles in Research 3 a.b.
Analysis of basic principles in the selection and measurement of cognitive, perceptual, and psychological processes and phenomena.

36:127 Psychology of Personality 3 a.b.
Theories and research on the structure of personality and the development of personality traits.

36:126 Development of Children's Social Behavior 3 a.b.
Behavioral, social, and cognitive development as they relate to the social environment; attachment, cooperation, and development of behavioral regulation; and social development.

36:121 Psychology of Aging 3 a.b.
An overview of the psychological issues of aging and the role of psychological factors in the aging process.

36:124 Introduction to Developmental Psychology 3 a.b.
An introduction to the development of psychological theories and research on attention, memory, perception, learning, motivation, and emotion.
Therapeutic Recreation

Therapeutic recreation focuses on preparing students to organize, plan, and lead recreation programs in treatment and non-treatment settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

Courses required for this concentration are:
- 104:110 Orientation to Rehabilitation 4 credits
- 104:112 Orientation to Special Populations 4 credits
- 104:125 Role of Therapeutic Recreation in Rehabilitation

Three courses selected with advisor

Leisure Studies

The leisure studies concentration is designed for students preparing for graduate work, or who have a major interest in leisure research or leisure as a contemporary social issue, or an interest in diverse fields of recreation, such as outdoor or industrial recreation. It is the most flexible of all concentrations, and makes the maximum use of courses outside of the Program in Recreation Education. It is also ideal for students wishing to obtain a minor in recreation education.

Commercial/Industrial

The commercial/industrial track is the newest emphasis area in recreation specialization. Students seeking careers in recreation specialization, such as health spas and clubs, sales of recreation goods or services, or recreation-related businesses, will find this specialization well-suited to their needs. Those interested in industrial recreation, the provision of recreational services and opportunities for employees by their employers, also will find this specialization appropriate. Students are urged to select a combination of guided elective exposure to business, fitness, and health-related areas.

Courses required for this area of concentration are:
- 104:138 Health Promotion in Corporate, Hospital, and Private Settings 4 credits
- 104:139 Managing the Commercial Recreation Enterprise

Three courses selected with advisor

Internship Opportunities

The recreation education program 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 every class in the professional core includes lectures by working professionals, as well as opportunities for field experience related to concentration areas.

The practical experience is climaxd by a professional internship for a full semester in an agency and setting of the student's selection. The internship is designed to lead to professional placement. More than 300 local, state, and national departments, agencies, and services provide field work and internship opportunities for students in the program.

Honors

Admission to the honors program in recreation education requires a formal application, completion of at least 30 semester hours of course work at the University, completion of at least 9 of the 32 semester hours of required major course work, and a grade-point average meeting the minimum requirement of the College of Liberal Arts Honors Program.

To graduate with honors in recreation education, the student must successfully complete 6 semester hours of honors work. With the permission of the chair of his or her honors committee, the student may take 3 semester hours of honors work in another department.

Minor

Students wishing to minor in recreation education may do so by meeting the following criteria:
- Students must complete a minimum of 15 semester hours in the recreation education curriculum, 12 of which must be taken in advanced (over 100 level) courses at The University of Iowa.
- Course work outside the major department will be determined by student interest and the approval of the undergraduate coordinator.

Graduate Program

The master’s program is designed to prepare students in the administrative, supervisory, and teaching positions in recreation systems and in agencies. It offers two areas of specialization: public, private, and commercial recreation, and therapeutic recreation administration. It may be taken with Thesis (33 semester hours) or without Thesis (36 semester hours). An introduction to scholarship activities and research is provided through 104:101 Leisure Research, or equivalent, and preparation of a thesis or research report. The research will result in a contribution to knowledge, a review of a report, or other scholarly work.

Public, Private, and Commercial Recreation

This area focuses on the development and administration of recreational programs in settings such as municipal departments, schools, volunteer agencies, churches, the armed forces, state and federal agencies, industries, private organizations, etc. The emphasis within these programs may be special population groups, such as inner-city and poverty groups, the aged, children and youth, or upon the meaning of leisure as a social phenomenon, with study of the historical, philosophical, and social issues of leisure. Public administration and urban social planning are particular aspects of this area. To provide this emphasis on special population groups, the program draws heavily from other disciplines, such as: public administration, social work, urban and regional planning, recreation and leisure studies, psychology, and sociology.

Therapeutic Recreation Administration

Therapeutic recreation relates to the development and administration of programs serving the mentally retarded, physically disabled, emotionally disturbed, and aging in both institutional and community settings.

The program is directed toward understanding recreation's role in a comprehensive rehabilitation process, including both clinical and community facets, and thus prepares the student to work with a broad range of disability areas either in a medical setting or in the community. Through the related area courses, strengths in specific disability areas may be developed.

It is recommended that the student have 10 to 12 semester hours of undergraduate credit in courses such as abnormal psychology, sociology of adjustment, unorganized, the mentally retarded, and aging. The student also should have skills in at least two program fields.

Facilities

Students majoring in recreation education have the opportunity to gain first-hand professional experience on paid or volunteer, through independent research in these and other locations: The University of Iowa, Hyatt House of the Consumer Cooperatives, the University of Iowa Division of Recreational Services, Iowa City Parks and Recreation Department, Southern Illinois University, various retirement and convalescence centers, and Coralville Department of Parks and Recreation.

Courses

Primarily for Undergraduates
- 104:000 Cooperative Education Internship
- 104:009 Foundations of Recreation
- 104:009 Recreational Therapy
- 104:009 Recreation and Community Development
The school is not a theological seminary; it has an academic rather than vocational orientation. The undergraduate major in religion provides a foundation for advanced academic work or for study at a theological seminary. The school's graduate program provides preparation for the study and teaching of religion as an academic discipline.

Undergraduate Program

Undergraduate students seeking the Bachelor of Arts in religion elect at least 27 semester hours of course work in religion. At least 12 of the 27 semester hours must fall under one of the areas of concentration listed below. A minimum of three courses in the area of concentration must be at the 100 level, and at least 12 of the semester hours must be outside the area of concentration. A minimum of one course outside the area of concentration must be at the 100 level. Students also must fulfill the requirements of the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog). Three semester hours of the General Education Requirements in the humanities are waived for students majoring in religion. The areas of concentration are Jewish and Christian scriptures; history of Christianity; Western theology and ethics; and Asian religions.

Honors

Religion majors eligible for the College of Liberal Arts and the Graduate School who meet the degree with honors through satisfactory completion of an honors essay during the senior year.

Graduate Programs

The School of Religion prepares a select number of graduate students to become specialists in the study and teaching of religion.

Master of Arts

There are two tracks toward the M.A. in religion. Students choosing the thesis track must earn a minimum of 30 semester hours in the School of Religion. These include 6 semester hours in 32:200 Methods and Theories in the Study of Religion I.

Remaining hours are principally in one of these five areas of concentration: Hebrew Bible and its historical and cultural implications; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology and ethics; and history of Asian religions. Students in the thesis program take at least one seminar in this area, and may count the thesis for 6 of the semester hours required. Students in the 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 requirements for languages and other research tools.

All students are required to take a written M.A. examination, which tests the student's competence in the area of concentration.

Master of Arts in Religion and Health

Study of the role of religion in illness and health requires a combination of theoretical and clinical investigation. The University of Iowa Hospitals and Clinics provide the setting for research and training in this program. Candidates for the Master of Arts in religion and health must complete 30 semester hours of course work. Final master's hours may be earned in thesis research. A maximum of 6 semester hours may be transferred from another accredited graduate or professional school.

The program includes required courses in religion and personality, and in related fields of ethics, religion in America, and other relevant fields outside the School of Religion. Students ordinarily take the comprehensive examination before writing the thesis. Knowledge of a foreign language, statistics, or another research tool may be required, at the discretion of the student's advisory committee.

In addition to the general requirements for admission outlined below, the school generally requires an on-campus interview of applicants to the M.A. program in religion and health; however, the interview may be conducted off-campus by an accredited member of the Association for Clinical Pastoral Education.

Doctor of Philosophy

Candidates for the doctorate must complete a minimum of 72 semester hours of graduate course work, of which 9 semester hours must be taken outside the School of Religion. A maximum of 12 semester hours is allowed for the dissertation.

Students qualify for the doctoral program by completing the following:

32:200 Methods and Theories in the Study of Religion I.

A seminar or pro-seminar, ordinarily in the area of the student's proposed concentration, requires completion of a substantial seminar paper that displays knowledge of appropriate methodology in the study of religion;

And a thorough revision of the paper in light of criticisms received in the seminar; the paper must then be submitted to the area faculty, who will evaluate the student's paper and course work to date.

Doctoral students must submit to the faculty in the area of concentration a program of study that includes course work and language and research tools in preparation for the oral and written comprehensive examinations.

Doctoral candidates also must pass an oral examination on the dissertation.

More detailed information on degree requirements and graduate study policies of the School of Religion is provided in Information for Graduate Students, which is available to all applicants and is regularly updated. Inquiries about any of the programs may be made to the director of the school.

Financial Aid

The School of Religion has available several types of departmental financial aid for graduate students: teaching assistantships, research assistantships, and teaching fellowships. The department also may nominate eligible students for University of Iowa fellowships. The Gilmore Scholarship has been established for students interested in the relationship of religion and culture, especially the visual arts.

Awards are made on a competitive basis. First-year students ordinarily are appointed only as research assistants.

Admission

All applicants for admission to graduate study must meet the general requirements of the Graduate College. In addition, the School of Religion ordinarily requires a combined verbal-quantitative score of 1050 on the Graduate Record Examination (GRE) Aptitude Test and a 3.0 grade-point average for admission to the M.A. program, and a combined verbal-quantitative score of 1,100 on the GRE Aptitude Test and a grade-point average of 3.2 for admission to the Ph.D. program. Three letters of recommendation and the submission of a significant writing sample also are required.

Resources

In addition to Greek and Latin modern European languages, the University offers courses in Japanese, Chinese, Sanskrit, and Pali. The School of Religion offers Hebrew regularity and other Semitic and Hamitic languages at the University of Iowa Hospitals.

The University of Iowa Hospitals and Clinics provide clinical opportunities for students in the M.A. program in religion and health. Individual courses on work and medical ethics also utilize hospital personnel and facilities.
Financial Aid

Aid is available to graduate students in the form of tuition scholarships, University fellowships, and teaching and research assistantships; it is awarded annually on a competitive basis. Teaching assistantships are not usually awarded to first-year students, though exceptions occasionally are made on the basis of advanced language skills. Applications are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the departmental office.

Summer and Study Abroad Programs

The department strongly encourages undergraduate and graduate students to participate in intensive programs of language study, both in the United States and in the Soviet Union. In recent years an increasing number of students have studied in summer-, semester-, and academic-year programs at Leningrad State University under the auspices of the Council on International Educational Exchanges, as well as in the similar American Council of Russian programs at the Pushkin Institute in Moscow. Other students have accelerated and refined their Russian language skills in various intensive summer programs at major American universities. Inquiries should be directed to the Russian department office.

Course Work for Nonmajors

The department offers a special, noncredit seminar, "Introduction to Native Speech of Children" (41:355–106) designed primarily for students who wish to develop a reading proficiency in Russian for research purposes in the natural, physical, social, and military sciences. The sequence is open to students in the humanities as well. The course 41:317 Readings in the Soviet Press is designed especially for students who wish to develop a reading proficiency geared to the daily and periodical press. A number of other classes are open to all University students and are offered in English. These include survey courses in Russian Soviet literature, culture and civilization, and a monograph course on Tolstoy and Dostoevsky.

Special Activities

Russian Circle is a student organization open to both undergraduates and graduates; it meets regularly for informal and planned social and educational activities and provides students with a valuable opportunity to develop conversational skills and to share experiences with other members of the University community. Participation in the Foreign Language House in South Quadburne Residence Hall is encouraged by the staff and serves as a focal point for many Circle functions, including weekly meals with faculty and guest speakers. A number of outstanding students are inducted annually into Zdrob Ilvun, the National Slavic Honor Society, and honored at a commemorative dinner.

Language Media Center

The University's Language Media Center provides facilities for language learning, teaching, and research. Equipment in the lab includes standard and short wave radio, tapes and cassette recorders, record player, soundproof recording rooms, drill rooms, and video facilities. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings are also available.

Courses

For Undergraduates and Graduates

41:317 Readings in the Soviet Press
Preparation: 41:355 or equivalent.
41:318 Readings in the Soviet Press
Preparation: 41:355 or equivalent.
41:397 Readings in the Soviet Press
Preparation: 41:355 or equivalent.
41:398 Readings in the Soviet Press
Preparation: 41:355 or equivalent.
41:418 Beginning Conversational Russian Workshop
41:419 Beginning Conversational Russian Workshop
41:419 Intermediate Conversational Russian
Preparation: 41:355 or 41:397.
41:419 Intermediate Conversational Russian
Preparation: 41:355 or 41:397.
41:430 Advanced Conversational Russian Workshop
Preparation: 41:355 or 41:397.
41:431 Advanced Conversational Russian Workshop
Preparation: 41:355 or 41:397.
41:496 Russian for Reading II
Preparation: 41:355 or equivalent.
41:507 Readings in the Soviet Press
Preparation: 12 units of language instruction or equivalent.
41:508 Special Readings
Preparation: 12 units of language instruction. May be repeated for a maximum of 6 units.
41:508 Special Readings
Preparation: 12 units of language instruction. May be repeated for a maximum of 6 units.
41:518 Advanced Conversation
Preparation: 41:355 or equivalent.
41:518 Advanced Conversation
Preparation: 41:355 or equivalent.
Science Education

Coordinator: Edward L. Prinz

Ph.D. Students: George H. Luebbe, John E. Pesici, James A. Shumway, Robert E. Vager

Associate Professors: George H. Comninos, Donald G. Phillips, Edward L. Prinz, Daniel S. Judkins, John J. Slavin

Degrees Offered: B.S., B.S., M.A.T., M.S., Ed.S., Ph.D.

Science education is concerned with the interface between science and society. The academic programs in science education include preparation in more than one discipline of science, a consideration of science from a philosophico-historical, and sociological perspective, and an introduction to applied science (technology), and an education sequence, which science educators can specialize in, with a transdisciplinary, program planning requires the cooperation and involvement of a variety of University departments and colleges. Most of the formal requirements are drawn from courses offered in these various departments.

Undergraduate Programs

The undergraduate program in Science education represents a transdisciplinary major in science for all students while providing an appropriate option for students interested in education as it pertains to science teaching, medical professions, allied health fields, or areas such as scientific journalism and law.

The science education major is not intended to prepare students for a four-year graduate study in one area of science. When graduates of the Science Education Program elect to pursue graduate studies in a single area of science, it is often necessary for them to complete additional courses in that discipline after admission to the Graduate College.

All of the emphasis areas in science education have the following characteristics in common:

- Depth in a general area of science, equivalent to three years or four semesters of sequential study;
- Preparation in a second area of pure science, equivalent to two years or four semesters of sequential study.

Introduction to two other fields of science.

A specified proficiency in mathematics as a tool of science (more mathematics is required for the physical science emphasis than the biological area);

- A view of science from a historical, philosophical/sociocultural perspective;

- Experience with the application of scientific knowledge in a technological society.

Outlines for the five areas of emphasis offered in science education are as follows:

Biology Emphasis

- 2.1 Introduction to Botany
- 3.2 Principles of Animal Biology Electives (in botany, microbiology, or zoology, including work in genetics, zoology, and physiology)
- 4.13-14 Principles of Chemistry Lab I
- 4.16 Principles of Chemistry Lab II
- 6.21 Organic Chemistry I
- 6.22 Organic Chemistry II
- 12.3 Principles of Physical Geology
- 12.4 Principles of Historical Geology
- 29.11 College Physics

Mathematics course at the level of 3201 or 3205 or higher
- 57.101 Social and Educational Applications of Biological Sciences
- Application of Science

One approved course chosen with the advisor's assistance, a wide variety of transfer courses from areas such as engineering, agriculture, and technical schools will satisfy this requirement.

History/Philosophy/Sociology of Science

- 97.128 Meaning of Science
- 97.130 Science in Historical Perspective

At least 25 semester hours of the biology emphasis must be earned in 100-level courses.

Environmental Studies Emphasis

- 2.1 Introduction to Botany
- 4.13-14 Principles of Chemistry I-11
- 4.16 Principles of Chemistry Lab I
- 4.12 Organic Chemistry I
- 12.3 Principles of Physical Geology
- 12.4 Principles of Historical Geology
- 29.11 College Physics
- 37.36 Principles of Animal Biology
- 37.130 Fundamental Genetics
- 37.132 Population and Community Ecology

Electives in biology, environmental engineering, and environmental health
Applications of Chemical Concepts 3 s.h.

Application of Science
Our approved course chosen with the
adviser’s assistance: a wide variety of
transfer courses from applied areas such as
engineering, agriculture, and technical
schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97/128 Meaning of Science 2-3 s.h.

At least 25 semester hours of the
chemistry emphasis must be earned in
100-level courses.

Physics Emphasis
29/11-12 College Physics 8 s.h.

97/17-18 Introductory Physics I-II 8 s.h.

At least 25 semester hours of the
physics emphasis must be earned in
100-level courses.

Application of Science

At least one approved course chosen
with the adviser’s assistance: a wide variety
of transfer courses from applied areas such as
engineering, agriculture, and technical
schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97/128 Meaning of Science 2-3 s.h.

At least 25 semester hours of the
earth science emphasis must be earned in
100-level courses.

Chemistry Emphasis
4/13-14 Principles of Chemistry I-II 6 s.h.
4/16 Principles of Chemistry Lab I-II 2 s.h.
4/121 Organic Chemistry I 3 s.h.
4/131 Physical Chemistry I 3 s.h.
4/141 Organic Chemistry Laboratory 2 s.h.
Chemistry electives 6 s.h.

Physics Emphasis
29/11-12 College Physics 8 s.h.

Physics electives 8 s.h.

Chemistry/Engineering Calculus I-II 8 s.h.
4/121-131 Principles of Chemistry I-II 8 s.h.
4/141 Physical Chemistry I 3 s.h.
4/141 Organic Chemistry I 3 s.h.

At least 25 semester hours of the
physics emphasis must be earned in
100-level courses.

Effective in astronomy, geology,
physical geography, and
meteology 4 s.h.

Applications of Science
Our approved course chosen with the
adviser’s assistance: a wide variety of
transfer courses from applied areas such as
engineering, agriculture, and technical
schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97/128 Meaning of Science 2-3 s.h.

At least 25 semester hours of the
chemistry emphasis must be earned in
100-level courses.

Earth Science Emphasis
12/3 Principles of Physical Geology 2 s.h.

12/103 Physical Geology 2 s.h.

12/4 Principles of Historical Geology 2 s.h.

12/104 Historical Geology 2 s.h.

12/41 Meteorology 4 s.h.

Earth Science Electives 11 s.h.

97/111-12 College Physics 8 s.h.

29/61-62 General Astronomy 8 s.h.

46/101 Weather and Climate 3 s.h.

46/13-14 Principles of Chemistry I-II 6 s.h.

4/16 Principles of Chemistry Lab I 2 s.h.

97/102 Societal and Educational
Applications of Earth Science Concepts and Topics 3 s.h.

Application of Science

At least one approved course chosen
with the adviser’s assistance: a wide variety
of transfer courses from applied areas such as
engineering, agriculture, and technical
schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97/128 Meaning of Science 2-3 s.h.

At least 25 semester hours of the
earth science emphasis must be earned in
100-level courses.

Chemistry Emphasis
4/13-14 Principles of Chemistry I-II 6 s.h.
4/16 Principles of Chemistry Lab I-II 2 s.h.
4/121 Organic Chemistry I 3 s.h.
4/131 Physical Chemistry I 3 s.h.
4/141 Organic Chemistry Laboratory 2 s.h.
Chemistry electives 6 s.h.

Physics Emphasis
29/11-12 College Physics 8 s.h.

Physics electives 8 s.h.

Chemistry/Engineering Calculus I-II 8 s.h.
4/121-131 Principles of Chemistry I-II 8 s.h.
4/141 Physical Chemistry I 3 s.h.
4/141 Organic Chemistry I 3 s.h.

At least 25 semester hours of the
physics emphasis must be earned in
100-level courses.

Coursework for Teacher Certification

To qualify for a secondary teaching
become certified to teach science, students must complete all College of
Liberal Arts General Education
Requirements, the requirements for a
preparation for a science education major, and the following
professional education courses:
75/15 Education and Measurement 3 s.h.
75/15 Science Methods I: Individualizing instruction in Science 2 s.h.
(29/3 s.h. of 75/151)

75/100 Issues in Education 2 s.h.

75/191 Observation and Laboratory Practice in the Secondary School
(29/3 s.h. of 75/151)

75/102 Science Methods II: Resources and Teaching Strategies
(29/1 s.h. of 75/190)

75/190 Individual Projects in Laboratory Practice
(29/2 s.h. of 75/152)

75/187 Seminar: Curriculum and Student Teaching
(29/2 s.h. of 75/187)

75/190 Projects in Laboratory Practice
(29/2 s.h. of 75/191 and 4 s.h. of 75/192)

75/191 Observation and Laboratory Practice in the Secondary School
(29/2 s.h. of 75/190 and 4 s.h. of 75/192)

75/192 Observation and Laboratory Practice in the Secondary School
(29/2 s.h. of 75/190 and 3 s.h. of 75/191)

75/102 Introduction to Microcomputing for Teachers 1 s.h.

75/187 Seminar: Curriculum and Student Teaching
(29/2 s.h. of 75/190 and 3 s.h. of 75/191)

Minors in Science Teaching

Six science teaching minors are available
for seniors planning majors in other
academic areas. All require 31 semester
hours of credit.

Students who wish to pursue a science
teaching minor and to qualify for University of
Iowa certification for teaching
certification should consult a faculty
member in Science Education.

All science teaching minors must include:
75/151 Science Methods I: Individualizing instruction in Science 2 s.h.

75/152 Science Methods II: Resources and Teaching Strategies 2 s.h.

75/191 Observation and Laboratory Practice in the Secondary School 3 s.h.

75/190 Science in Historical Perspective 2 s.h.

Other basic requirements:

Biology
2.1 Introduction to Botany 4 s.h.
37/3 Principles of Animal Biology 5 s.h.
97/106 Societal and Educational Applications of Biological Concepts 4 s.h.

Botany and zoology electives 9 s.h.

Chemistry
37/3 Principles of Chemistry I-II 6 s.h.
97/106 Societal and Educational Applications of Chemical Concepts 3 s.h.

Chemistry electives 6 s.h.
Physics
10.1-12 College Physics 8 s.h.
37.105 Societal and Educational Applications of Selected Geoscience concepts 3 s.h.
37.108 Physics electives 10 s.h.

General Science I
2.1 Introduction to Botany 4 s.h.
29.041 General Astronomy 4 s.h.
12.3 Principles of Physical Geology 2 s.h.
12.4 Principles of Historical Geology 3 s.h.
14.2 Principles of Chemistry I 3 s.h.
29.11 College Physics 4 s.h.
Applications elective 3 s.h.

General Science II (Environmental Studies Emphasis)
2.1 Introduction to Botany 4 s.h.
37.3 Principles of Animal Biology 5 s.h.
37.132 Population and Community Ecology 3 s.h.
6.2 Principles of Chemistry I 3 s.h.
Electives in environmental engineering 3 s.h.
57.145 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Earth Science
12.3 Principles of Physical Geology 3 s.h.
12.4 Principles of Historical Geology 2 s.h.
29.61 General Geology 4 s.h.
57.102 Societal and Educational Applications of Earth Science Concepts and Topics 3 s.h.

Special Rules
Since the Science Education Program involves many students preparing for a variety of professions and graduate areas, many faculty advisers, and several colleges and departments, some special rules and regulations apply to science education students. They include the following.

At least 10 semester hours of graded credit in science must be earned at The University of Iowa.

Transfer students entering any of the joint programs must complete their last 30 semester hours in residence at The University of Iowa in order to be eligible for the B.A. or B.S. degree one year later.

Science education majors should meet their language requirement with German, French, or Russian; an academic advisor may approve the use of another language if circumstances make such a choice desirable; letters approving other languages are filed with the student's records in the Registrar's Office.

No science core courses numbered "11" or credit from the CLEP Natural Science General Examination may be used toward the major in science education.

Science courses taken in other colleges of the University (for example, 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 Registrar’s Office that such a course is equivalent to the one offered in that department.

Courses used for the major may not be taken pass-fail; grades from all courses used for the science education major will be used in computing a student's grade-point average in the major both at The University of Iowa and overall.

Since mathematics forms an integral part of so many aspects of modern science, all science education students are urged to complete numerous appropriate advanced courses in both pure and applied mathematics (including statistics and computer science) so that they may be qualified to do graduate work and quantitative research later on.

Iowa-SSST
Iowa-SSST is a special program for talented secondary school students who register for credit or undergraduate students. The program includes research participation, enrichment courses, and environmental field experiences.

Iowa-UPSTEP
Iowa-UPSTEP is a continuing program for 3 or 4 undergraduate students interested in exploring science teaching as a career option. Students register for program seminars and varied practicum experience. In addition to activities with youth, seminars, and regular courses, students are involved in excursions, social activities, and special action projects.

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.

The M.A.T. program is designed for students with strong undergraduate preparation in science who have decided after receiving the bachelor's degree that they want to teach science in secondary schools. Students who want to be certified or to complete this degree must make sure that the combination of undergraduate and graduate course work satisfies all requirements of the appropriate approved undergraduate science teacher education program.

The other graduate programs in science education are for persons who want additional preparation in science and education for K-12 teaching; for persons interested in supervisory and/or administrative positions in schools; for persons interested in educational evaluation; for persons who want to teach science and/or science education at the college level; and for persons interested in developing instruction programs in health, industrial, and/or related settings.

The graduate programs in science education continue the philosophy and pattern of the undergraduate programs outlined above. Specific components of each of the graduate programs are as follows:

Master of Arts in Teaching
Education 31 s.h.
Science specialization 14 s.h.
Minimum total 45 s.h.

Master of Science Without Thesis
Science education 9 s.h.
Science specialization 20-25 s.h.
Corporative studies 3-4 s.h.
Minimum total 34 s.h.

Master of Science with Thesis
Science education 9 s.h.
Science specialization 20-25 s.h.
Corporative studies 3-4 s.h.
Minimum total 32 s.h.

Doctor of Philosophy
Advanced science education 26 s.h.
Research dissertation 10 s.h.
Science specialization 28 s.h.
Corporative studies 8 s.h.
Minimum total (beyond master's degree) 72 s.h.

Corporative studies includes intensified science preparation, enriched science preparation, enriched professional preparation, integrative studies.

Admission
The requirements for admission to graduate study in science education are identical to those of the Graduate College. The admission process is coordinated with the College of Education.
Special Programs

Iowa-ASSIST

Iowa-ASSIST is a special program in science education that involves in-service teachers in special curricular redesign and implementation efforts. Summer and academic year workshops provide the basic mode of operation for the program. Associated with Iowa-ASSIST is an Interactive Curriculunarium, which provides printed and laboratory materials for awareness conferences and workshops.

In addition, Iowa-ASSIST administers a fall Science and Education Conference that attracts more than 200 teachers and students from Iowa schools; sponsors a spring Science and Humanities Symposium, jointly with the U.S. Army Research Branch; and about 500 high-ability students and their teachers; sponsors several conferences for the improvement of science teaching and public awareness of science—ASKI SWEDE; and each summer sponsors special workshops utilizing national authorities and enrolling 750 teachers, supervisors, and administrators.

Research

Each faculty member in science education is responsible for use on one or more areas of research. Major research interests of faculty and graduate students include the following:

Philosophy and sociology of science

Individualized learning

Computer-assisted learning

Creative writing

Institutional development related to science teaching and learning

Education in less developed countries

Health education

Studies of effective teaching and learning

Atmospheric and other atmospheric studies of interaction

International Programs

Another dimension of the Science Education Center is its emphasis on international issues. Many foreign students are enrolled. The faculty has been involved with several international programs and projects as well.

Facilities

The physical facilities for science education programs at The University of Iowa are exemplary.

The Science Education Center is located in Van Allen Hall near the center of the University campus.

Facilities include the main office of the Science Education Center, a photostatic laboratory, a departmental conference room, an office for coordinating Iowa-ASSIST, a model-in-service program for assisting schools in implementing new national curriculum programs in Iowa schools, a suite of offices or student program activities; space for the elementary school science of the program, a laboratory for the elementary school science methods course; two large teaching laboratories; offices for the history and philosophy of science components of the science education and secondary school teacher education programs; a self-service laboratory including equipment and materials; a library; a large seminar room used as an instructional center for some secondary science laboratory education sessions, including many facets of the Iowa-SPSST 10 model; multiple offices for graduate assistants; a common area for small group discussions and individual work; and two large areas for social group and committee work.

Courses

The following are special courses offered by the Science Education Program to supplement the undergraduate and graduate areas in science education and to provide science options for elementary and special education majors.

Primarily for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>87 040</td>
<td>Cooperative Education Internship</td>
<td>0.50</td>
</tr>
<tr>
<td>87 140</td>
<td>Fundamentals of Science</td>
<td>4.00</td>
</tr>
<tr>
<td>87 141</td>
<td>Science and Technology in Education</td>
<td>3.00</td>
</tr>
<tr>
<td>87 240</td>
<td>Special Topics in Science</td>
<td>3.00</td>
</tr>
<tr>
<td>87 440</td>
<td>Science Laboratory</td>
<td>4.00</td>
</tr>
<tr>
<td>87 540</td>
<td>Science Foundations I</td>
<td>3.00</td>
</tr>
<tr>
<td>87 541</td>
<td>Science Foundations II</td>
<td>3.00</td>
</tr>
<tr>
<td>87 542</td>
<td>Science Foundations III</td>
<td>3.00</td>
</tr>
<tr>
<td>87 543</td>
<td>Science Foundations IV</td>
<td>3.00</td>
</tr>
<tr>
<td>87 544</td>
<td>Science Foundations V</td>
<td>3.00</td>
</tr>
</tbody>
</table>

For Undergraduates and Graduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>87 145</td>
<td>Science and Educational Applications of Earth Science Concepts and Topics</td>
<td>0.00</td>
</tr>
<tr>
<td>87 146</td>
<td>Science and Educational Applications of Biological Concepts</td>
<td>0.00</td>
</tr>
<tr>
<td>87 147</td>
<td>Review of basic concepts concerning the science of biology and a seminar of problems under the direction of various major areas with a current social issue related to biology.</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Social Studies Education

Cherrett: Robert H. Fitch

Professor: Robert H. Fitch

Associate Professor: E. Arnold Steen

Degrees offered: B.A., M.A., Ph.D.

Undergraduate Program

The major in social studies education is an interdisciplinary, nonprofessional major. It provides an excellent foundation for careers in law, social work, religion, urban planning and social services, and government service at all levels. Its major purpose, however, is to provide a general education for students preparing to teach in
secondary schools. Together with the professional requirements for certification, this major meets the standards for teaching social studies established by the North Central Association of Colleges and Secondary Schools.

Major requirements for the B.A. degree in social studies education total 60 semester hours of credit earned in departments cooperating in the social studies education program. Distribution of the course work is as follows: 12 semester hours in either U.S. or world history; 12 semester hours each in economics, political science, and sociology; at least 4 semester hours in geography; and 5 semester hours in geography, anthropology, U.S. history, or world history.

Students pursuing a social studies education major will take survey courses introducing them to the various social studies. Many of the departments also offer independent study and seminars as alternatives to formal classes.

There is no separate two-year program in social studies education. Students who qualify 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 completing a social studies major.

Admission Requirements
Transfer students must have earned a minimum grade-point average of 2.7 on all work done in the subjects of the cooperating departments in order to be admitted to a program. Approval of candidacy for the bachelor's degree will be granted only to students who have a minimum 2.7 grade-point average in all college work undertaken in the cooperating departments.

Graduate Programs
Master of Arts
Some graduates of this program are social studies teachers and directors of social studies departments in junior and senior high schools. Some serve as curriculum consultants for school districts, while others are staff members in community colleges. A few have found the degree to be excellent preparation for professional work in curriculum and penal institutions. For a few, the master's program in social studies education has provided access to civil service positions at various levels of government. The students may elect to take the master's degree with or without thesis, under either of two plans, both requiring 36 semester hours of credit in graduate courses. To be one plan the student completes at least 10 semester hours of course work in the cooperating departments, and may complete the remaining 8 semester hours in one or among all of the cooperating departments. In the other plan the student completes at least 20 semester hours of course work in the cooperating departments and not more than 10 in education, and may complete the remaining 8 semester hours in either or both of her related departmental areas. Both plans require at least 9 semester hours of credit earned in courses numbered 200 or above, including one such course in each of the student's fields of emphasis.

All candidates also must complete 98:201 Individual Instruction in Social Studies Education and/or 98:302 Seminar: Social Studies Education. The candidate must pass an oral and written comprehensive examination. The program offers a wide variety of educational experiences, depending on the candidate's fields of study. Possibilities include small group instruction, seminar work, independent study and reading, computer experience, internships, and laboratory work.

Admission Requirements
A student wishing to major in social studies education for a master's degree must have earned at least 20 semester hours of undergraduate credit in one area of social studies at an accredited institution, and must have a minimum grade-point average of 3.0 on all work undertaken in social studies up to the time of application. After earning a social studies education major, the M.A. candidates must maintain at least a 3.0 grade-point average.

Doctor of Philosophy
Some graduates of the social studies education doctoral program hold administrative posts in institutions of higher education, serving as presidents, provosts, or deans of faculty or graduate studies. Some are department chairs in colleges of education or curriculum directors in large urban districts. Many are engaged in teacher education programs in colleges and universities, while others are college instructors in the field of academic concentration.

The program consists of a minimum of 90 semester hours of course work and dissertation credit beyond the bachelor's degree, exclusive of test requirements established by the College of Education. These credits are to be distributed among the cooperating disciplines and professional education. Depending on the background and needs of the candidate, work in the chosen disciplines will comprise approximately 50 percent of the total 90 semester hours, work in education approximately 50 percent. Depending on the areas of study be or the student chooses, the candidate will have an opportunity for regular classroom, small group instruction, internship, independent study, fieldwork, and laboratory and computer experience. Seminar and advanced work in courses numbered 200 or above is required in each of the areas of study. All candidates must complete 98:201 Individual Instruction in Social Studies Education and/or 98:302 Seminar: Social Studies Education.

After completing both of her or his course work, the candidate must take a qualifying examination covering each of her or his fields of emphasis.

The candidate must complete and orally defend a dissertation based on original work in either one or her or his academic fields of study or on some aspect of social studies education.

Admission Requirements
Admission to doctoral study in social studies education requires a bachelor's degree in history or a social science from an accredited institution, a master's degree in history, a social science, or education; satisfactory performance on the Graduate Record Examination, and an academic record showing promise of scholarly success.

Facilities
Students to social pedagogy education have access to the laboratories and facilities of the cooperating departments and the College of Education. The following laboratories are also available, such as the University Hospital School, the Iowa Center for Education in Politics, the Bureau of Educational Research, the Institute of Public Affairs, the Iowa Educational Testing Center, the Curriculum Laboratory, the Statistical Consulting Center, the computer center, and the Weing Center Computing.

The faculty members who serve as social studies education advisors and coordinators are experienced classroom teachers who have advanced degrees having been earned in history, the social sciences, and education. They are active in professional organizations, consultative work, and are working in schools in curriculum revision.

Courses
98:051 Individual Instruction in Social Studies Education 0-3 hrs.
98:091 Individual readings, field studies, and individual practical work in history and social sciences or on problems of professional education. May be repeated. Prerequisite: consent of instructor.
Reading and discussion of significant developments in history, social sciences, and social studies education; advanced independent paper required. Prerequisite: consent of instructor. Same as 98:207.
Social Work

Director: Joan Wood Wiegman
Profs: H. Wayne Johnson, Thomas H. Walz, Jane S. Walz
P's: Elizabeth A. Anderson, Frank Z. Gies, Mildred Sudo
Adm: Woodrow W. Morris, Charles C. Butler, Dr. Joseph W. Bell, and Assistant Professors


Professor emeritus: R. Stanley Good

Adjunct associate profs: Charles M. Abel, Mary Frederickson, Howard Eppel, and Assistant professors


Assistant professor: Bobbi L. Maloney, E. Jean Williams


Assistant instructors: John Broiolo, Brenda Brooks, Paul S. Smith, Thomas H. Bahlman

Adjunct instructors: Cyndy Filling

Videographer: Glenn Johnson

Bookkeeper: Barbara Bueltrup

Bursar: Margaret Johnson


Degrees offered: B.A., M.S.W.

The School of Social Work provides an accredited program of professional training at the baccalaureate and master's level. The school provides a professional social work milieu that supports a people-centered approach to professional education.

Undergraduate Program

The Bachelor of Arts program prepares students for beginning professional social work practice. The goal of the program is to prepare students for employment in social services using B.A. graduates, such as public service, government agencies, social services, mental health, and corrections; to provide a base for graduate study in social work or allied professions; and to prepare students for informed community participation in social welfare issues.

The program is accredited by the Council on Social Work Education. Undergraduate students majoring in social work must satisfy the College of Liberal Arts General Education Requirements, excluding the social sciences requirement. The General Education Requirement in natural sciences should include 11-21 hours.

The following courses are required for the major:

Freshman/Sophomore Years

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>411 Introduction to American Politics</td>
<td>3.0</td>
</tr>
<tr>
<td>311 Elementary Psychology</td>
<td>3.0</td>
</tr>
<tr>
<td>313 General Psychology</td>
<td>3.0</td>
</tr>
</tbody>
</table>

411 Introduction to Sociology: Principles Any basic economics course 3.0, 3.0

In Sequence

422 Introduction to Social Work 4.0
424 Human Behavior in the Social Environment 3.0
424 Social Work Practice I 3.0
427 Social Work Practice II 3.0

Junior/Senior Years

4219 Social Work and Discrimination 3.0, 3.0
421 Social Work and Racism of Approved courses from another department (see School of Social Work for list) 3.0
421 Social Welfare Program and Policy 3.0
4219 Social Research 3.0
4219 Field Seminar 1.5
4219 Field Experience 4.0, 4.0

A minimum of 12 semester hours of course work is required in one department listed below. Most students select either psychology or sociology. Courses used to meet general education and foreign language requirements do not count toward the 12 semester hours, nor do the specifically required social science courses.

American studies

Anthropology

Business

Economics

Education

English

History

Home economics

Journalism

Political science

Psychology

Recreation education

Religion

Sociology

Spanish

Honors

The School of Social Work has an honors program leading to a Bachelor of Arts with Honors in Social Work. The average grade-point average is required for participation in the program, which enables students to study in depth subjects of interest to them.

Admission

Admission to the undergraduate program in social work.

Completion, with at least a C grade, of 422 Introduction to Social Work, which can be taken the sophomore year, at least a 2.4 grade-point average; and Completion of the application process.

More information is available from the coordinator of admissions at the School of Social Work.

Graduate Program

The Master of Social Work program prepares social workers for leadership in the profession and for advanced social work practice either as generalists or in one of two concentrations. The program's general focus is on family systems and social change. Its common goals, to be met through a set of core requirements, are to enable all students to understand the dynamics of human development and change; to develop responsibility of human service and the personal and professional roles that they serve; to understand the link between society and the individual; and to acquire intervention skills for working with individuals, families, small groups, organizations, and communities.

The program is accredited by the Council of Social Work Education.

The Master of Social Work program has been approved by the school. At least 60 semester hours of credit in graduate courses approved by the school, including at least 36 semester hours earned after admission to the program. Students who have completed an accredited undergraduate major in social work are eligible for a 12-semester-hour reduction of credits required for the M.S.W. With their advisers, who play an active role in assisting students in their educational planning, students should explore additional ways to waive course requirements.

The school operates a 12-month program.

The summer session is a full summer, but with not as wide a selection of classroom courses as is offered during fall and spring.
students. Therefore, students entering the program with an accredited undergraduate social work degree and/or with advanced standing may expect to complete the program in four semesters (i.e., the fall semester following fall admission). Students requiring the entire 40 semester hours after admission generally complete the program in the spring semester of their second year. Students must maintain at least a 2.5 cumulative grade-point average, must be approved for BSW candidacy, and must successfully complete a master’s comprehensive examination. The student may elect a thesis option for credit, and the final examination is the oral defense of the thesis.

The following is an outline of the M.S.W. degree requirements:

**Core courses:**
- 42.140 Human Behavior in the Social Environment 3 s.h.
- 42.141 Social Work Practice I 3 s.h.
- 42.145 Social Welfare Program and Policy 3 s.h.
- 42.146 Social Work Research 3 s.h.

**Other required courses:**
- 42.202 Social Change, Social Development, and Social Work 1 s.h.
- 42.127 Social Work and Racism 2-3 s.h.
- 42.119 Social Work and Discrimination 3 s.h.
- 42.256 Advanced Research Seminar 3 s.h.

**Concentrations/Generalist options:**
- 7-12 s.h.
- Concentrators (42.203 or 42.204) 3 s.h.
- Two additional courses in the concentration selected 4-6 s.h.

**Generalist:**
- Required courses in concentrations (42.203 and 42.204) 6 s.h.
- Two additional courses 4-6 s.h.
- Advanced policy course 2 s.h.
- Practicum 12 s.h.
- Practicum seminar 2 s.h.
- Electives (may include thesis) 3-4 s.h.
- Total 6-15 s.h.

**Total:**
- 45-60 s.h.

**Concentrations**
After admission, students may choose one of three plans of study. They may elect either to pursue advanced work as a social work generalist or to choose between two concentrations. The human development and change concentration is designed to develop practice competence in working with individuals, families, and small groups. The administration and social development concentration equips students to be effective administrators and facilitators in human service agencies and communities, domestic and international.

**Generalist**
The generalist option is designed to provide students with advanced knowledge and skills across concentrations so that they are better able to fulfill a variety of functions within a community. This is especially important and appropriate for students who want to work in rural communities, small agencies, and public welfare; they will need administrative and community development skills as well as clinical skills. It is also suitable for persons who want to be able to move across the areas of various types of social work practice rather than to be limited to a single type of practice. Practicum will include some opportunity for practice experience at every system level.

**Human Development and Change**
Through the human development and change concentration, students develop practice competence as enablers of personal development and change as brokers/advocates for individuals and families—both traditional and nontraditional. The concentration prepares students to enhance individual, interpersonal, and social functioning through intervention with individuals, families, and small groups. It maintains a holistic perspective and develops awareness of the interrelationship between individuals and the social, political, and economic environments in which they live. "Comprehension is given to the biological, psychological, cultural, and social origins of behavior."

**Administration and Social Development**
The administration and social development concentration seeks to equip students to be effective leaders and facilitators, responsive to people and their needs in human service organizations as well as in neighborhoods and communities. The concentration's dual focus allows students to emphasize either the administration or social development, or to combine the two. The administrative content is designed to enable students to develop practice skills in administrative roles, such as supervisor, program developer, program monitor, and program administrator. Its focus is on the middle management of large organizations or the direction of small organizations. The social development content emphasizes helping skills in policy analysis, investigative and documentary research, negotiation, conflict resolution, social and political action, and collaborative development process, whether domestic or international. Its purpose is to promote more humanitarian forms of organization and mutual support systems, and to mobilize altruistic and oppressed people to move societies toward greater equity in rights and resources.

**Satellite Centers**
The school offers both classes and practicum learning in the Des Moines and Quad Cities satellite centers. Register School of Social Work faculty are available for student advising and for teaching all required courses.

The centers have three major purposes to enrich the educational programs of full-time students by providing greater diversity of practicum opportunities; to make pursuit of the graduate degree in social work practically available to students unable to relocate to Iowa City; and to provide continuing education opportunities throughout the state for non-degree students.

For full-time students, the general plan is to begin the program in the fall semester. In Iowa City. Depending on choice the student makes, practicum begins as early as the second semester. Some students remain at site in Cedar Rapids or the remainder of their programs, but must be assigned to one of the Des Moines or Quad Cities Centers. This flexibility involves the student's relocation.

The Des Moines Center, 115 miles from Iowa City, is located in the state's capital city. Des Moines also is the largest city in the state. Many fine practicing opportunities are available in state government offices, child and family agencies, mental health programs, and a variety of other settings.

The Quad Cities Center is located on the Mississippi River in Davenport, 60 miles from Iowa City. As part of the Quad Cities metropolitan area of 740,000 people, this center provides a wealth of practicum opportunities unavailable in Iowa City, including regional and advocacy planning, agency sponsorship, social and political minorities, and programs for the elderly.

Students relocating in the Quad Cities also have the opportunity to connect to Iowa City for classes and activities. Intensive, short-term, split-session courses are offered in the Iowa City campus in the summer to enable students from other centers to take on-campus courses.

**Part-Time Program**
The School of Social Work has one of the largest part-time programs in the nation. Admission and degree requirements are the same as for full-time students. The program enables single parents, working people, and others unable to pursue a degree on a full-time basis to complete the program. Part-time students may complete the program in no more than twelve semesters, with only two semesters of full-time registration (9 semester hours or more). Students may complete the part-time program in Iowa City, or in the Quad Cities or Des Moines Centers.
Joint Degree and Special 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 admitted to each department through its regular admissions processes. Twelve semester hours in each program are applied to requirements of the other, thus reducing the time it would normally take to pursue two degrees. Individual arrangements may be made with other departments. Students have pursued joint degrees with the College of Business Administration, the American Studies Program, School of Religion, School of Journalism and Mass Communication, and others. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Other special projects students may become involved in are our National Resource Center on Family-Based Services and the School of Social Work Gerontology Program.

Another feature of the school is the opportunity it affords its students to participate in overseas seminars. Each spring, a policy seminar travels to Washington, D.C. Other urban, rural, national, and international seminars are available when there is sufficient interest.

Graduate Admission

The criteria for admission for full-time and part-time graduate students are as follows: A baccalaureate degree from an accredited college or university, with a reasonable distribution of credits in the social sciences and humanities; At least a 3.0 grade-point average for the junior and senior years of undergraduate study, or for 12 semester hours of letter-graded graduate course work (exceptions noted below); Three positive letters of recommendation, including one regarding academic abilities and one or more regarding social service or other work experience; A personal statement addressing criteria specified by the School of Social Work. Previous experience in the human services (volunteer, field or employment) is desired. Previous enriching life experience (cross-cultural, international experience and background, and minority status) also will be given consideration.

Foreign applicants must score at least 600 on the Test of English as a Foreign Language (TOEFL).

It is the school's policy to admit 16 to 25 percent of the M.S.W. class with grade-point averages below 3.0. Applicants who are especially strong candidates on the basis of other criteria may be admitted. Since the school seeks to maintain a heterogeneous student body, it makes special efforts to admit students representing a diversity of racial, ethnic, and socioeconomic backgrounds. Students with developmental disabilities also are encouraged to apply. The part-time program is designed for students for whom full-time study would be a hardship due to employment or other considerations.

Applications for full-time study are accepted beginning September 1 for the next academic year. Applications for part-time study may be made at any time. A complete statement of graduate admissions policies is available upon request.

Continuing Education

Through the Saturday and Evening Class Program in Iowa City and the School of Social Work's Des Moines and Quad Cities centers, non-degree students may enroll for courses and workshops. Twelve semester hours of graduate course work may be applied to the master's degree requirements for students who later enroll in the program.

Financial Aid

Financial aid for students varies from year to year. All students seeking financial assistance should apply for aid through The University of Iowa Office of Student Financial Aid, and should maintain close contact with their academic advisors regarding availability of funds from the School of Social Work. Aid received through The University of Iowa Office of Student Financial Aid does not preclude students from consideration for aid through the School of Social Work. Various types of aid administered by the School of Social Work include research and teaching assistantships, work-study appointments, traineeships, scholarships, and the Enzio K. Taylor loan fund. Aid is available from other sources, such as Special Support Services, tuition grants, International Scholarship Awards, and the South African Scholarship Program, as well as from a few agencies that provide stipends for graduate students in practice.

Courses

For Graduates and Undergraduates

"Courses with numbers preceded by an asterisk are required in the M.S.W.

3104 Cooperative Education Internship 4 s.h.
3111 International Community Services 3 s.h.
3112 Community Planning 3 s.h.
3113 Foundations of Social Welfare 3 s.h.
3114 Social Welfare Policy 3 s.h.
3115 Community Mental Health Services 3 s.h.
3117 Interdisciplinary Program for Graduates 3 s.h.
3119 Social Work and Socialization 3 s.h.
3120 Social Work and Human Services 3 s.h.
3122 Social Work and Dynamics 3 s.h.
4210 Introduction to Social Work 4 s.h.
4230 Social Work and Social Policy 4 s.h.
4250 Social Work and Social Policy 4 s.h.
4252 Social Work and Social Policy 4 s.h.
4255 Social Work and Social Policy 4 s.h.
4256 Social Work and Social Policy 4 s.h.
4257 Social Work and Social Policy 4 s.h.
4258 Social Work and Social Policy 4 s.h.
4259 Social Work and Social Policy 4 s.h.
4260 Social Work and Social Policy 4 s.h.
4261 Social Work and Social Policy 4 s.h.
4262 Social Work and Social Policy 4 s.h.
4263 Social Work and Social Policy 4 s.h.
4264 Social Work and Social Policy 4 s.h.
4265 Social Work and Social Policy 4 s.h.
4266 Social Work and Social Policy 4 s.h.
4267 Social Work and Social Policy 4 s.h.
4268 Social Work and Social Policy 4 s.h.
4269 Social Work and Social Policy 4 s.h.
4270 Social Work and Social Policy 4 s.h.
4271 Social Work and Social Policy 4 s.h.
4272 Social Work and Social Policy 4 s.h.
4273 Social Work and Social Policy 4 s.h.
4274 Social Work and Social Policy 4 s.h.
4275 Social Work and Social Policy 4 s.h.
4276 Social Work and Social Policy 4 s.h.
4277 Social Work and Social Policy 4 s.h.
4278 Social Work and Social Policy 4 s.h.
4279 Social Work and Social Policy 4 s.h.
4280 Social Work and Social Policy 4 s.h.
4281 Social Work and Social Policy 4 s.h.
4282 Social Work and Social Policy 4 s.h.
4283 Social Work and Social Policy 4 s.h.
4284 Social Work and Social Policy 4 s.h.
4285 Social Work and Social Policy 4 s.h.
4286 Social Work and Social Policy 4 s.h.
4287 Social Work and Social Policy 4 s.h.
4288 Social Work and Social Policy 4 s.h.
4289 Social Work and Social Policy 4 s.h.
4290 Social Work and Social Policy 4 s.h.
4291 Social Work and Social Policy 4 s.h.
4292 Social Work and Social Policy 4 s.h.
4293 Social Work and Social Policy 4 s.h.
4294 Social Work and Social Policy 4 s.h.
4295 Social Work and Social Policy 4 s.h.
4296 Social Work and Social Policy 4 s.h.
4297 Social Work and Social Policy 4 s.h.
4298 Social Work and Social Policy 4 s.h.
4299 Social Work and Social Policy 4 s.h.
5100 Social Work and Social Policy 4 s.h.
5101 Social Work and Social Policy 4 s.h.
5102 Social Work and Social Policy 4 s.h.
5103 Social Work and Social Policy 4 s.h.
5104 Social Work and Social Policy 4 s.h.
5105 Social Work and Social Policy 4 s.h.
5106 Social Work and Social Policy 4 s.h.
5107 Social Work and Social Policy 4 s.h.
5108 Social Work and Social Policy 4 s.h.
5109 Social Work and Social Policy 4 s.h.
5110 Social Work and Social Policy 4 s.h.
5111 Social Work and Social Policy 4 s.h.
5112 Social Work and Social Policy 4 s.h.
5113 Social Work and Social Policy 4 s.h.
5114 Social Work and Social Policy 4 s.h.
5115 Social Work and Social Policy 4 s.h.
5116 Social Work and Social Policy 4 s.h.
5117 Social Work and Social Policy 4 s.h.
5118 Social Work and Social Policy 4 s.h.
5119 Social Work and Social Policy 4 s.h.
5120 Social Work and Social Policy 4 s.h.
5121 Social Work and Social Policy 4 s.h.
5122 Social Work and Social Policy 4 s.h.
5123 Social Work and Social Policy 4 s.h.
5124 Social Work and Social Policy 4 s.h.
5125 Social Work and Social Policy 4 s.h.
5126 Social Work and Social Policy 4 s.h.
5127 Social Work and Social Policy 4 s.h.
5128 Social Work and Social Policy 4 s.h.
5129 Social Work and Social Policy 4 s.h.
5130 Social Work and Social Policy 4 s.h.
5131 Social Work and Social Policy 4 s.h.
5132 Social Work and Social Policy 4 s.h.
5133 Social Work and Social Policy 4 s.h.
5134 Social Work and Social Policy 4 s.h.
5135 Social Work and Social Policy 4 s.h.
5136 Social Work and Social Policy 4 s.h.
5137 Social Work and Social Policy 4 s.h.
5138 Social Work and Social Policy 4 s.h.
5139 Social Work and Social Policy 4 s.h.
5140 Social Work and Social Policy 4 s.h.
5141 Social Work and Social Policy 4 s.h.
5142 Social Work and Social Policy 4 s.h.
All candidates for the M.A. degree must complete 34.201 History of Sociological Theory, 34.202 Sociological Theory, 34.214 Elementary Statistics and Data Analysis, and 3.215 Sampling, Measurement, and Observational Techniques, with grades of B or higher.

M.A. in Criminal Justice and Corrections

The program is designed for individuals who wish to work in criminal justice. Since it is assumed that a sociological orientation and background is extremely valuable for criminal justice work, the major emphasis of the program is sociological. It is also recognized that specialized knowledge is essential to performance of specific criminal justice roles; therefore the student may select 15 semester hours of course work in areas such as legal process, administrative procedure, or direct intervention techniques in order to develop expertise. The flexible curriculum allows students, in consultation with their advisor, 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 low faculty-student ratio is maintained. Interim classes are available with local criminal justice agencies. Successful completion of this program requires a minimum of 36 graduate credits, a 3.0 grade-point average on all work taken, and a master's paper (not a thesis).

Joint Program in Sociology and Law

A student may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. The College of Law will give credit for up to 12 hours of graduate work taken after entering the joint program provided the 12 hours are credit hours required for the J.D. program, even though those hours are also credited toward the M.A. in sociology. At the discretion of the student, the faculty of the School of Law and the faculty of the School of Criminal Justice may also give credit for up to 12 hours of graduate work toward the M.A. in sociology. Credit must be granted for at least 12 hours of graduate work toward the M.A. in sociology.

A minimum degree of 72 semester hours is required for the B.A. degree in sociology, and there is a minimum cross-registration of 24 semester hours in the humanities.

All doctoral candidates are examined in the basic tool areas of sociology—history, theory, methods, and statistics—and on one major and one minor area chosen from the areas represented by the faculty, such as social psychology, crime, deviance, family, social stratification, organizations, demography, race, ethnicity, and statistics. A description of faculty interests is available upon request.

A detailed statement of regulations for graduate study also is available upon request. Prospective doctoral candidates should examine this statement carefully.

Admission

Admission to graduate study in sociology normally requires a minimum undergraduate grade-point average of 3.0 and a total score of 1100 from the quantitative plus verbal sections of the Graduate Record Examination (GRE). Aptitude Test, Foreign students whose native language is not English should submit scores from the TOEFL exam. In addition to fulfilling the Graduate College requirements for admission (see the "Graduate College" section of the Catalog), the applicant must complete a departmental application form and use its personal references forms in obtaining three letters of recommendation. Applications should be submitted at least two months before the start of the academic year in which admission is requested. The deadline for applying for departmental Graduate Grants in sociology is March 1. Admission decisions are based on consideration of prior academic performance, personal reference letters, scores on the GRE Aptitude Test, and the applicant's statement of reasons for pursuing advanced work in sociology. The department has no specific undergraduate coursework that is required for admission, but a background in the social sciences with some mathematical training is useful. A foreign language is not required for admission and there are no foreign language requirements for either the M.A. or Ph.D. degrees in sociology. Applicants seeking admission should be directed to the chair, Admissions Committee, Department of Sociology.

Admission to the M.A. program in criminal justice and corrections requires a B.S. or a B.A. degree, a grade-point average of 2.75, and a total score of 1500 from the quantitative plus verbal sections of the GRE Aptitude Test. A descriptive publication is available at the department office.

Financial Aid

The Department of Sociology offers three types of financial assistance to students: teaching assistantships, research assistantships, and teaching/research fellowships. Resident tuition is charged to out-of-state students who receive awards. Students who receive one-half time assistantships work 20 hours each week for assistance.
35.102 Spanish Picarocalypse Literature 3 s.h.
35.103 Spanish Novellists Since the Civil War 3 s.h.
35.104 Twentieth-Century Spanish Writers 3 s.h.
35.187 Periods and Genres of Spanish Literature I 3 s.h.
35.188 Periods and Genres of Spanish Literature II 3 s.h.

Civilization (3 s.h.)

One of the following:
35.120 Spanish American Civilization 3 s.h.
35.150 Spanish Civilization 3 s.h.

Electives (6 s.h.)

Two electives may include one course in Portuguese (with exception of 38.1 and for no more than 4 semester hours credit) or any course numbered 35.001 or above, except that no more than 4 semester hours may be elected in conversation courses 2 semester hours each of 35.103 Spanish Conversation: Junior Level and 35.104 Spanish Conversation: Senior Level). No more than 3 semester hours may be elected in special work courses. The following courses may not be elected to fill this requirement:
35.101 Accelerated Elementary Spanish
35.102 Advanced Intermediate Spanish
35.105 Language Teaching Practicum
35.115 Methods of Foreign Language Teaching and Instruction
35.116 Language Laboratory Equipment Preparation
35.117 Basic Program for Foreign Language Computer Processing

One course given in English may be taken to satisfy 3 semester hours of this requirement provided additional readings are done in Spanish.

High School Teaching Certification in Spanish

Spanish majors who want certification to teach high school must complete the requirements listed above for the major in Spanish. Several courses in the College of Education also are required as is one semester of student teaching taken in the senior year.

Minor in Spanish

A minor in Spanish requires 15 semester hours of course work in Spanish taken at The University of Iowa or at a University of Iowa foreign study program, including 12 semester hours at the 100 level. The 100 level courses listed above as not requisite toward the other requirement for the Spanish major also may not be applied toward the minor. No more than 3 semester hours of credit may be applied toward the minor from the following courses:
35.119 Introduction to Bilingualism 3 s.h.
35.137 Introduction to Chicano Literature and Culture 3 s.h.

35.174 Topics in Chicano-Puerto Rican Studies 3 s.h.
35.175 Cultural Identity in Caribbean Literature 3 s.h.
35.176 Latin American Studies 3 s.h.
35.195 Special Work 1-3 s.h.

Students who plan to use the Spanish minor in teaching on the secondary level or in a bilingual program are encouraged to complete language study through 35.109 Fourth-Year Spanish Language or its equivalent, and to elect additional courses in Spanish phonology and Hispanic literature and civilization.

Transfer Credit

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.

Foreign Study Programs

The department has two foreign study programs, one in Mexico City and the other in Burgos, Spain; both last eight weeks in the summer. A limited amount of credits earned in these and other foreign study programs may be applied toward the requirements for the major or minor in Spanish.

Honors in Spanish

Admission to the Honors Program in Spanish requires a minimum 3.2 overall grade-point average and a minimum 3.2 average in Spanish. Graduation with honors in Spanish requires, in addition to the 30 semester hours major described above, 6 semester hours earned in 35.108 Honors: Spanish Literature and/or 35.197 Honors: Spanish Language, an honors essay in Spanish, and an oral examination conducted in Spanish.

Bachelor of Arts in Portuguese

Beginning courses in Portuguese are for students without previous foreign language study or experience. Classes are small, providing for a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking and comprehending basic Brazilian Portuguese; they incorporate cultural material in the form of films and music.

The Bachelor of Arts in Portuguese requires the following courses or their equivalents, for a total of 27 semester hours of course work beyond the second-year level:

Prerequisites:
38.1 Elementary Portuguese I 4 s.h.
38.2 Elementary Portuguese II 4 s.h.
38.100 Accelerated Portuguese 0-5 s.h.
38.11 Intermediate Portuguese I 4 s.h.
38.12 Intermediate Portuguese II 4 s.h.

Required Courses (15 s.h.)
38.102 Topics in Portuguese Language (upper-division language) 3 s.h.
38.114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
38.115 Brazilian Literature I 3 s.h.
38.116 Brazilian Literature II 3 s.h.
38.117 Introduction to Portuguese Literature 3 s.h.

Two of the Following Courses (6 s.h.)
38.120 Portuguese for the Professions 3 s.h.
38.121 Upper-division Portuguese Language 3 s.h.
38.123 Brazilian Fiction 3 s.h.
38.124 Twentieth-Century Brazilian Fiction 3 s.h.
38.125 Topics in Luso-Brazilian Literature 3 s.h.
38.126 Topics in Portuguese Linguistics 3 s.h.

Electives (6 s.h.)

Other courses in the above group or other non-regular offerings in Portuguese (seminars, conversation). Approved courses in related areas (e.g. art, anthropology, comparative literature, geography, history, Latin American studies, linguistics, sociology).

Minor in Portuguese

The undergraduate minor in Portuguese consists of 15 semester hours taken at The University of Iowa in courses numbered 38.100 and above.

Courses for Undergraduate Nonmajors

Undergraduate students in other disciplines may meet part of the College of Liberal Arts and Sciences General Education Requirements in humanities and foreign civilization and culture with 38.102 Contemporary Latin American Culture, which the requirements are in English. The department offers several other language and cultural survey courses that are taught in English and are of general interest.

Latin American Studies Program

The department plays an important and active role in the Latin American Studies Program, an interdisciplinarity undergraduate program focusing on the history, politics, social organization, economy, art, and literature of Latin America. Work in the program leads to a certificate or minor in Latin American Studies. To receive the certificate, students must have sufficient competence in Spanish or Portuguese to do background readings in the language before enrolling in the required senior seminars. For further information on the Latin American Studies Program.
Graduate Programs

Master of Arts in Spanish

Candidates for the M.A. degree must have completed the equivalent of two years of undergraduate Spanish major. Deficiencies may be remedied with the appropriate course work. The following course work is required.

35:177-178 Periods and Genres in Spanish American Literature I-II 6 s.h.
35:187-188 Periods and Genres in Spanish Literature I-II 6 s.h.
35:200 Foreign Language Teaching Methods 3 s.h.
35:203-204 Gradwork Spanish Linguistics I-II 8 s.h.
35:226 Historical Indo-Romanic Languages 7 s.h.

For elective courses at the 200 level or the advanced 100 level, no more than two (6 s.h.) of which may be taken outside the department, the required minimum is 37 semester hours for the M.A. program.

Students also are responsible for the works listed in the departmental reading list.

Maximum Study Loads

Maximum course registration is 15 graduate semester hours during the fall or spring semesters and 8 graduate semester hours during the summer sessions. One-quarter- and one-third-time teaching assistants are permitted to register for the maximum study loads. One-half-time teaching assistants may register for not more than 11 semester hours in the fall or spring semesters, and for not more than 6 semester hours during the summer sessions of any seven-semester hour unit. Students may be taken only with Graduate College approval.

Transfer Credit

A maximum of 9 semester hours of graduate credit in approved courses may be transferred from other institutions toward the M.A. degree requirement for the M.A. degree.

Teaching Certification

Exclusive of the student-teaching requirement, graduate students may take one course necessary for secondary teaching certification while completing M.A. requirements in the department.

Examinations

Three written examinations and one oral examination are given. For the written examinations, students must include at least one topic each from two of the following three areas (both Spanish and Hispanic-American literature must be represented): Spanish linguistics, Medieval literature or Golden Age literature; and, Modern Spanish literature, Spanish American literature, or Luso-Brazilian literature.

Doctor of Philosophy in Spanish

Two doctoral programs are available. The first is dedicated to Hispanic literatures. Before the comprehensive examinations, candidates must complete the equivalent of three years of college-level study in another Romance language and become well acquainted with its literature in limited areas of specialization (a Portuguese-Brazilian program is especially recommended). Complete the equivalent of a year of college Portuguese, and complete the equivalent of one year of college-level study of another approved foreign language. This language must be Latin for those who will write the dissertation on a pre-1700 topic.

The second doctoral program provides for specialization in Spanish linguistics. Before taking the comprehensive examinations, candidates must complete the equivalent of two years 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.

Students also are responsible for the works listed in the departmental reading list.

Program I: Literature Track

The following course work is required.

M.A. courses or equivalent transfer credit 37 s.h.
35:259 Introduction to Contemporary Literary Theory 3 s.h.
Three 300-level semesters 6 s.h.
35:359 Thesis 2 s.h.

Eight elective courses at the 200 level or the advanced 100 level, no more than three (9 s.h.) of which may be taken outside the department, but the total semester hours to be required minimum of 72 in the Ph.D. program.

Program II: Linguistics Track

The following course work is required.

M.A. courses or equivalent transfer credit 37 s.h.
Department of Linguistics: 3 s.h.
35:119 Articulatory and Acoustic Phonetics 3 s.h.
35:112 Syntactic Analysis 3 s.h.
35:122 Phenomenological Theory and Analysis 3 s.h.
35:121 Syntactic Theory 3 s.h.
35:122 Phenomenological Theory 3 s.h.
Department of Spanish and Portuguese: 3 s.h.
One course in Advanced Spanish Syntax 3 s.h.
One course in Comparative Romance Linguistics 3 s.h.
One course in Spanish (Advanced) 3 s.h.

One elective course in Spanish Linguistics 3 s.h.
Two 300-level seminars in Spanish Linguistics 3 s.h.
35:239 Thesis 2 s.h.

Total semester hours required 72 s.h.

Ph.D. Qualifying Examination

All doctoral students are admitted conditionally to the Ph.D. program and must take a qualifying examination during their second semester of Ph.D. study. Upon satisfactory completion of the Ph.D. qualifying examination, students are admitted to the Ph.D. program on a regular basis.

The purpose of the Ph.D. qualifying examination is to assess a doctoral student's potential for scholarly research, abilities in analytical thinking and critical reasoning, and level of sophistication in library or linguistic argumentation. The exam marks the formal occasion on which doctoral students begin to give intellectual focus to their program of study. Because it affords opportunity for both student initiative and faculty advice in defining a doctoral student's academic goals, the Ph.D. qualifying examination is significant in preparing doctoral students to take the Ph.D. comprehensive examination and to write the Ph.D. dissertation.

The Ph.D. qualifying examination is administered in both written and oral parts and includes the following:

Written presentation and subsequent oral defense of a research paper.

Written analysis of a single text in Hispanic literature or a single problem in Spanish linguistics that is assigned to the candidate. The candidate must present a summary of the past 30 minutes of advance reading on the text or problem presented to the candidate. The length of the written portion of the Ph.D. qualifying examination is two hours. Oral portion, which includes defense of the research paper, discussion of the written examination, and discussion of selected readings in linguistic or literary works, is usually one and one-half hours long. The examining
committees 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 linguistics or in Spanish linguistics to enter the Ph.D. examination as a teacher-scholar. The number of examinations is six, organized as follows:

Literature Track
A broad area in Spanish literature; a reading list is determined by the student and his or her advisory committee.

Linguistics Track
A broad area in Spanish linguistics; a reading list is determined by the student and his or her advisory committee.

Two specialized areas of the candidate's choosing. These areas might involve further and more specialized exploration of particular periods, genres, or movements within Spanish, Spanish-American, and/or Luso-Brazilian literary and cultural history; or they might involve in-depth study of specific problems in Hispanic literary criticism or in literary theory. The candidate is given wide latitude in formulating the reading lists for these areas according to his or her research and teaching interests.

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 the candidate's four areas; an oral examination follows, usually lasting two hours.

Financial Aid
Teaching and research assistantships are available to qualified graduate students. Normally, 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 graduate students' studies and performance meet departmental standards, they will continue to receive support over a reasonable period of time, but usually not for more than five years. Students who wish financial support should apply directly to the departmental office.

All graduate students pursuing advanced degrees in the Department of Spanish and Portuguese are required to spend at least one academic year as a teaching or research assistant in the department.

Facilities
The language laboratory provides facilities for language learning, teaching, and research. These include standard and shortwave radio, tape recorders, record players, microcomputers, recordings, two drill rooms with 58-dual-channel tape recorders providing a simultaneous master duplicate and student record, an electronic classroom, a soundproof work room, films and film projection equipment and facilities, and a library of tape, videocassette, and disc recordings. The department offers its majors a special course in language laboratory procedures.

Courses

Spanish—Primarily for Undergraduates
Undergraduate students who have had less than two years of high school Spanish are placed in a first- or second-semester course. Students with two or more years of high school Spanish are placed in a third- or fourth-semester class. Prospective and entering students should consult a departmental advisior. Students who wish more advanced placement may take the placement test. Transfer students who have taken college Spanish at other institutions will be placed according to previously completed courses. 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 they have not received credit or for which they have not completed a prerequisite. 20:000 Cooperative Education Internship 0 a. h.
20:11 Elementary Spanish I 4 a. h.
20:22 Elementary Spanish II Prerequisite: 20:11 or equivalent. 4 a. h.
31:5 Accelerated Elementary Spanish 5 a. h.
A complete two-course sequence is assumed to indicate requiring one year of college-level foreign language.
31:10 Intermediate Elementary Reading in Spanish 1 a. h.
Beginning course primarily for graduate students who want a reading instruction in Spanish. Does not satisfy foreign language requirements. Offered through Graduate Correspondence Study.
31:15 Spanish for Health Professionals 3 a. h.
Preparatory introductory course to acquaint students with basic vocabulary used when dealing with Spanish-speaking patients, emphasizes pronunciation and stress patterns. Students will also learn in a more informal way how to deal with interpersonal aspects of Hispanic patients. May be taken in place of 31:10 or in lieu of foreign language requirements.
31:11 Intermediate Spanish I Prerequisite: 31:10 or equivalent. 4 a. h.
31:12 Intermediate Spanish II Prerequisite: 31:11 or equivalent. 4 a. h.
31:13 Accelerated Intermediate Spanish 5 a. h.
A course accelerated course, presented in one semester. May be taken instead of 31:11 and 31:12 to satisfy foreign language requirements. Prerequisites: 31:10 or equivalent.
31:20 Contemporary Latin American Sartis 3 a. h.
Prerequisite: seniors and advanced undergraduate students in the major fields of the social and human/behavioral sciences; English reading in a field of study. Offered through Special Problems in General Education. Prerequisites: 31:20.
31:25 Spanish Pronunciation 3 a. h.
Designed for beginning and intermediate Spanish students who wish to study Spanish pronunciation, written or oral; rather than technical grammar is refined, emphasizing students' particular difficulties. Meets concurrently with 31:10. Prerequisites: 31:10 or registration.
31:26 Special Work Prerequisite: faculty signature. 1-3 a. h.
31:28 Spanish—For Undergraduates and Graduate Students...
20:000 Brigham Young University 3 a. h.
...
35.137 Spanish American Literature of the Twentieth Century
Regarded as the peak of Spanish American literature, the twentieth century has seen a flourishing of new voices and styles.

35.138 Spanish American Literature of the Nineteenth Century
The second half of the century saw a continuation of Romantic influences, with a focus on social issues and political themes.

35.139 Spanish American Literature of the Eighteenth Century
The Enlightenment and the Age of Reason influenced Spanish American literature, leading to a focus on rationalism and intellectual discourse.

35.140 Spanish American Literature of the Seventeenth Century
During the Baroque period, literature became more elaborate and intricate, with a focus on religious themes.

35.141 Spanish American Literature of the Sixteenth Century
The golden age of Spanish literature, characterized by the works of Cervantes and other major figures.

35.142 Spanish American Literature of the Fifteenth Century
The early period of Spanish literature, characterized by the works of Góngora and other major figures.

35.143 Spanish American Literature of the Fourteenth Century
The development of the Spanish language and the first attempts at a national literature.

35.144 Spanish American Literature of the Thirteenth Century
The period of the troubadours and the兴起 of chivalric literature.

35.145 Spanish American Short Story of the Nineteenth Century

35.146 Spanish American Short Story of the Eighteenth Century

35.147 Spanish American Short Story of the Seventeenth Century

35.148 Spanish American Short Story of the Sixteenth Century

35.149 Spanish American Short Story of the Fifteenth Century

35.150 Spanish American Short Story of the Fourteenth Century

35.151 Spanish American Short Story of the Thirteenth Century

35.152 Spanish American Short Story of the Twelfth Century

35.153 Spanish American Short Story of the Eleventh Century

35.154 Spanish American Short Story of the Tenth Century

35.155 Spanish American Short Story of the Ninth Century

35.156 Spanish American Short Story of the Eighth Century

35.157 Spanish American Short Story of the Seventh Century

35.158 Spanish American Short Story of the Sixth Century

35.159 Spanish American Short Story of the Fifth Century

35.160 Spanish American Short Story of the Fourth Century

35.161 Spanish American Short Story of the Third Century

35.162 Spanish American Short Story of the Second Century

35.163 Spanish American Short Story of the First Century

35.164 Spanish American Short Story of the Prehistoric Period
Undergraduate Programs

Since the master's degree or its equivalent is the minimum level of preparation for professional programs, in this field, the undergraduate curriculum leading to the B.S. or B.A. degree emphasizes and hearing science do not qualify an individual to work professionally in the field but primarily prepare students for graduate work. Hence, the undergraduate programs emphasize the normal processes of speech, hearing, and language. Those undergraduate programs aim to be taken by persons preparing a degree in the College of Liberal Arts who do not want a career in this field.

The major requirements for the B.S. or B.A., degree in speech and hearing science are as follows:

13.15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
13.110 Articulatory and Auditory Phonetics 3 s.h.
13.110 Anatomy of Speech and Hearing Mechanisms 3 s.h.
13.122 Fundamentals of Speech Science 3 s.h.
13.112 Introduction to Hearing Science 3 s.h.
13.177 Psychological Language I 3 s.h.
13.178 Psychological Language II 3 s.h.
13.193 Introductory Acoustics 3 s.h.
13.193 Introduction to Statistical Methods 3 s.h.
13.25 Elementary Statistics and Intercourse 3 s.h.
13.111 General Psychology 3 s.h.
13.21 General Psychology 4 s.h.

One of the following courses must be preferred:

3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
M.A. with Professional Emphasis

Students preparing for the M.A. with professional emphasis must fulfill requirements under 1 below and, depending on specific area of emphasis, complete a final oral examination.

1. All Majors

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3116 Neural Processes of Speech and Language</td>
<td>3.0</td>
</tr>
<tr>
<td>3162 Articulation Disorders</td>
<td>3.0</td>
</tr>
<tr>
<td>3165 Hearing Loss and Audiology</td>
<td>4.0</td>
</tr>
<tr>
<td>3214 Developmental Language Disorders</td>
<td>3.0</td>
</tr>
<tr>
<td>3244 Rehabilitative Audiology</td>
<td>3.0</td>
</tr>
<tr>
<td>3260 Counseling for Related Professions</td>
<td>3.0</td>
</tr>
<tr>
<td>or 3160 Counseling Theories and Techniques</td>
<td>3.0</td>
</tr>
</tbody>
</table>

3510 Seminar: Introduction to Research in Speech and Hearing 0.0

Advanced seminars or research 4.0

Additional semester hours of practicum registration sufficient to meet supervised clinical experiences requirements in the Certificate of Clinical Competence of the American Speech-Language-Hearing Association, and to provide broad supervised practicum experience.

*Equivalent undergraduate course may be accepted as meeting requirements.

2. Speech-Language Pathology, General Clinical Emphasis

Course prerequisites under 1 and:

3122 Shuttering 3.0
3122 Voice Disorders 2.0
3235 Neurological and Speech and Language 3.0
3237 Child Palate and Related Disorders 2.0
Additional practicum, research, and elective courses.

3. Speech-Language Pathology, Emphasis on Clinical Work in Elementary and Secondary Schools

Courses listed under 1 and 2 and:

7110 Remedial Methods in Speech and Hearing 2.0
1710 Laboratory Practice in Elementary School 5.0
Additional practicum, research, and elective courses.

4. Audiology, General Clinical Emphasis

Courses listed under 1, and:

3120 Fundamentals of Laboratory Instrumentation 3.0
3140 Manual Communication* 1.0
3140 Clinical Audiology and Hearing Aids 4.0
3171 Advanced Audiology 3.0
3232 Clinical Audiology and Hearing Aids 1 4.0
3145 Audiology Procedures for Special Populations 3.0
Additional practicum, research, and elective courses.

5. Audiology, School Hearing Clinician

Courses listed under 1 and 4, and:

7114 Remedial Methods in Speech and Hearing 2.0
1712 Laboratory Practice in Elementary School 3.0
5.0
Additional practicum, research, and elective courses.

Requirements for Employment

A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons who work in locations other than the public schools. Students who meet the requirements listed above for the M.A. degree with professional emphasis also meet the academic requirements for the license in Iowa, as well as to meet other states.

Students preparing for clinical positions in public schools must meet the certification requirements of the states in which they plan to work. Completion of the following courses, in addition to those listed under 3 or 5 above, will also fulfill the certification requirements of Iowa and most other states.

7117 Human Relations for the Classroom Teacher 3.0
Education electives 8.0

Doctor of Philosophy

The Ph.D. program provides flexible, comprehensive training for the speech-language clinician who desires to contribute to the discipline in research and teaching in a university setting. The program reflects the breadth and depth of the discipline and is designed to meet the needs of students who desire some training in applied linguistics and the needs of those who desire some training in the clinical and linguistic areas.

The program requires a minimum of 36 semester hours of graduate credit and includes a minimum of 9 semester hours of graduate-level courses. The program requires at least 21 credits in the clinical area, and a minimum of 18 credits in the applied linguistic area. It also includes an original research project, which must be completed under the supervision of a faculty member and approved by the Graduate School. The final examination is oral, and all credit hours must be completed within nine years of the date of admission.
Admission to the M.A. Program
The department bases M.A. admission on the applicant's credentials 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 admits few applicants with undergraduate grade-point averages below 3.0.

Completed applications must be received no later than February 1 for enrollment in the next summer session or fall semester. Later applications will be considered only in special circumstances and only if they are received no later than the preceding November 1.

Program for Speech, Hearing, and Language Disorders, and a six-week summer residential program for children. These programs give students supervised clinical experiences with a wide variety of speech, hearing, and language disorders.

In addition to the clinical training in the University Speech and Hearing Clinic, training also may be acquired in improved clinical practice with elementary school children by arrangement with the various state area education agencies, and in supervised clinical practice in speech and hearing services provided by the departments of Otolaryngology—Head and Neck Surgery, Pediatrics, and Neurology, the Regional Child Health Specialty Clinics, University Hospital, School, Veterans Administration Medical Center, and St. Luke's Methodist Hospital in Central Region.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities
Facilities in the Wendell Johnson Speech and Hearing Center include audiotronic tracing suites, diagnostic and remediation suites, equipment for diagnosis and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, phonological, and perceptual studies of speech, and for audiological, psychophysical, and neurophysiological studies of hearing. The laboratory is equipped with electronic audios and trained technical personnel to maintain and test equipment.

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 participation and cooperation of specialists from various fields, including psychology, child development, education, engineering, statistics, and medicine, further broadens the scope of research activities in speech and hearing.

Courses
3/00 Speech Pathology and Audiology
Cooperative Education Assignment
Coun. 3.0
Counseling assignment by the Cooperative Education Program Office and approved by the department.

3.0 Introduction to Speech and Hearing Normal and Disorder
Coun. 3.0
Preparation for Speech and Hearing Courses.

3.00 Speech Pathalogy and Audiology
Computer-Assisted
Coun. 3.0
Computer-assisted assignment in the field.

3.07 Hearing Conservation
Prep. 3.0
Preparation for Speech and Hearing Courses.

4.00 Audiology
Coun. 3.0
Counseling assignment by the Cooperative Education Program Office and approved by the department.

4.00 Audiology
Coun. 3.0
Counseling assignment by the Cooperative Education Program Office and approved by the department.
Auditions

Auditions for departmental productions are held at the beginning of each semester. Audition materials and information can be picked up at the theatre arts office, room 107 Theatre Building, at the beginning of each semester and during regular class hours.

Degree Requirements

The following courses comprise the basic experience for all undergraduate theatre majors. Students who demonstrate readiness/proficiency for higher level work may seek permission for advanced standing by notifying their adviser. It is the responsibility of faculty in each interest area to set their own criteria for evaluation and to determine the student's qualification for advanced standing. Students who want to be considered for special emphasis programs must seek the guidance of the undergraduate program chair.

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 department and the University before they may undertake advanced level electives or seek admission to a special emphasis program.

Minor Requirements (required of all theatre arts majors)

4831 Art of the Theatre 3 s.h.
4832 Acting I 3 s.h.
4940 Stagecraft Practicum 3 s.h.
4940 Stagecraft Practicum 3 s.h.
4840 Play Script Analysis 3 s.h.
4890 Playwriting 3 s.h.
4890 Performance Production 1 s.h.
4912 Production 3 s.h.
4895 Senior Seminar 3 s.h.
4898 Theatre History I 3 s.h.
4899 Theatre History II 3 s.h.
Any two dramatic literature courses 6 s.h.

Special Emphasis Program Requirements:

Acting Emphasis:

4922 Acting II 3 s.h.
4923 Acting III 3 s.h.
4924 Acting IV 3 s.h.
4928 Basic Stage Combat 2 s.h.
4928 Voice for the Actor 3 s.h.
4930 Movement for the Actor 3 s.h.
4940 Stage Makeup 3 s.h.

Directing Emphasis:

4970 Directing I 3 s.h.
4971 Directing II 3 s.h.
4972 Directing III 3 s.h.
4973 Directing IV 3 s.h.
4922 Acting II 3 s.h.
4911 Student Direction: Theatre 3 s.h.
4916 Movement for the Actor 3 s.h.
4920 Voice for the Actor 3 s.h.

Playwriting Emphasis:

In addition to the minimum requirements for theatre arts majors, the following are required:

4842 Basic Playwriting 3 s.h.
4917 Advanced Playwriting 3 s.h.
4940 Elements of Design 3 s.h.
4922 Acting II 3 s.h.
4970 Directing I 3 s.h.
and three of the following:

4971 Directing II 3 s.h.
4911 Contemporary Theatre 3 s.h.
4912 Playwrights Ensemble 3 s.h.
4913 Adaptation 3 s.h.
4914 Playwriting for Other Media 3 s.h.
4946 Dramaturgy 3 s.h.
4919 Playwriting: The Document 3 s.h.
Final project: a full-length play or its equivalent in shorter works. One five-minute scene must be staged for the faculty.

Graduate Program

Master of Fine Arts

Students who demonstrate exceptional ability in acting, directing, playwriting, design, technical direction, costume design, production, stage management, or academic study in theatre arts management may apply for admission to the graduate program in theatre arts. Admission is based on audition, interview, and/or a portfolio of relevant artistic work. Graduates are required to complete at least 32 graduate credits. Areas of study include acting, directing, design, technical theatre, and stage management. The degree also provides the student with a basic background in music, visual arts, and cultural studies.

Facilities

The University of Iowa has one of the finest educational theatre complexes in the United States. The Theatre Building houses three theatres and up-to-date facilities for classroom, laboratory, shop, and performance work.

The E.C. Miller Theatre, a continental style, 477-seat proscenium playhouse, is one of the finest small theatres of its type in the United States. Theatres A and B are intimate, 200-seat "black box" production spaces. Elevator moveable seating units allow quick modification of space and audience relationships. Theatre B, a fixed-seating, end-stage theatre, seats 140. This small studio theatre is designed for modern productions that do not emphasize technical complexity. All three theatres are equipped with state-of-the-art electronic lighting control and sound reproduction systems.

In addition to special classwork for acting and directing, several spaces are designed for teaching particular aspects of dramatic study. The "movement room" is for study of human movement and motion by acting students. The "intelligence classroom" is equipped with instructional resources such as video, laser disc, closed circuit and cable television, audio systems, and computer instructional equipment. The Armie Gilett Design Studio, named for the long and productive design career of the former head of Iowa's theatre program, serves as both classroom and studio workshop for fine-tuning technical and design students. This studio features the latest professional-quality, computer-assisted design programs.

To support its continual production schedules and to provide students with appropriate space, the department maintains several spaces for building, painting, maintenance, and storing scenery, costumes, and properties. Using these shops, students learn to work in metal, plastics, latex, and wood. Theatre Building facilities also expose students to stage and back-of-theater lighting and multi-channel sound systems.

Courses

For Primarily for Undergraduates

4940 Cooperative Education Internship 3 s.h.

4840 Playwriting 2 s.h.

4841 Acting I 3 s.h.

4842 Acting II 3 s.h.

4843 Acting III 3 s.h.

4844 Acting IV 3 s.h.

4845 Acting V 3 s.h.

4846 Acting VI 3 s.h.

4847 Acting VII 3 s.h.

4848 Acting VIII 3 s.h.

4849 Acting IX 3 s.h.

4850 Acting X 3 s.h.

4851 Acting XI 3 s.h.

4852 Acting XII 3 s.h.

4853 Acting XIII 3 s.h.

4854 Acting XIV 3 s.h.

4855 Acting XV 3 s.h.

4856 Acting XVI 3 s.h.

4857 Acting XVII 3 s.h.

4858 Acting XVIII 3 s.h.

4859 Acting XIX 3 s.h.

4860 Acting XX 3 s.h.

4861 Acting XXI 3 s.h.

4862 Acting XXII 3 s.h.

4863 Acting XXIII 3 s.h.

4864 Acting XXIV 3 s.h.

4865 Acting XXV 3 s.h.

4866 Acting XXVI 3 s.h.

4867 Acting XXVII 3 s.h.

4868 Acting XXVIII 3 s.h.

4869 Acting XXIX 3 s.h.

4870 Acting XXX 3 s.h.

4871 Acting XXXI 3 s.h.

4872 Acting XXXII 3 s.h.

4873 Acting XXXIII 3 s.h.

4874 Acting XXXIV 3 s.h.

4875 Acting XXXV 3 s.h.

4876 Acting XXXVI 3 s.h.

4877 Acting XXXVII 3 s.h.

4878 Acting XXXVIII 3 s.h.

4879 Acting XXXIX 3 s.h.

4880 Acting X 3 s.h.

4881 Acting XI 3 s.h.

4882 Acting XII 3 s.h.

4883 Acting XIII 3 s.h.

4884 Acting XIV 3 s.h.

4885 Acting XV 3 s.h.

4886 Acting XVI 3 s.h.

4887 Acting XVII 3 s.h.

4888 Acting XVIII 3 s.h.

4889 Acting XIX 3 s.h.

4890 Acting XX 3 s.h.

4891 Acting XXI 3 s.h.

4892 Acting XXII 3 s.h.

4893 Acting XXIII 3 s.h.

4894 Acting XXIV 3 s.h.

4895 Acting XXV 3 s.h.

4896 Acting XXVI 3 s.h.

4897 Acting XXVII 3 s.h.

4898 Acting XXVIII 3 s.h.

4899 Acting XXIX 3 s.h.

4900 Acting XXX 3 s.h.

4901 Acting XXXI 3 s.h.

4902 Acting XXXII 3 s.h.

4903 Acting XXXIII 3 s.h.

4904 Acting XXXIV 3 s.h.

4905 Acting XXXV 3 s.h.

4906 Acting XXXVI 3 s.h.

4907 Acting XXXVII 3 s.h.

4908 Acting XXXVIII 3 s.h.

4909 Acting XXXIX 3 s.h.

4910 Acting XXX 3 s.h.

4911 Acting XXXI 3 s.h.

4912 Acting XXXII 3 s.h.

4913 Acting XXXIII 3 s.h.

4914 Acting XXXIV 3 s.h.

4915 Acting XXXV 3 s.h.

4916 Acting XXXVI 3 s.h.

4917 Acting XXXVII 3 s.h.

4918 Acting XXXVIII 3 s.h.

4919 Acting XXXIX 3 s.h.

4920 Acting XXX 3 s.h.

4921 Acting XXXI 3 s.h.

4922 Acting XXXII 3 s.h.

4923 Acting XXXIII 3 s.h.

4924 Acting XXXIV 3 s.h.

4925 Acting XXXV 3 s.h.

4926 Acting XXXVI 3 s.h.

4927 Acting XXXVII 3 s.h.

4928 Acting XXXVIII 3 s.h.

4929 Acting XXXIX 3 s.h.

4930 Acting XXX 3 s.h.

4931 Acting XXXI 3 s.h.

4932 Acting XXXII 3 s.h.

4933 Acting XXXIII 3 s.h.

4934 Acting XXXIV 3 s.h.

4935 Acting XXXV 3 s.h.

4936 Acting XXXVI 3 s.h.

4937 Acting XXXVII 3 s.h.

4938 Acting XXXVIII 3 s.h.

4939 Acting XXXIX 3 s.h.

4940 Acting XXX 3 s.h.

4941 Acting XXXI 3 s.h.

4942 Acting XXXII 3 s.h.

4943 Acting XXXIII 3 s.h.

4944 Acting XXXIV 3 s.h.

4945 Acting XXXV 3 s.h.

4946 Acting XXXVI 3 s.h.

4947 Acting XXXVII 3 s.h.

4948 Acting XXXVIII 3 s.h.

4949 Acting XXXIX 3 s.h.
232 LIBERAL ARTS/Theatre Arts

4877 Comedy Mask Impromptu
Introduction to mask improvisation technique
3 h.

4878 Basic Stage Combat
Designed to introduce students to the principles; safety, and techniques involved in non-contact based hand combat
3 h.

4879 Basic Acting II
A continuation of MIND 117. Emphasis on developing creative expression through performance, improvisation, monologues, group exercises, and
3 h.

4880 Stage Combat
Practical application to the construction, painting, and lighting of scenery and properties
3 h.

4881 Costume Construction
Practical experience in construction, dyeing, and finishing of costumes and related properties
3 h.

4882 Drama of Design
Directors and principles of design: color, mood, and the creative process
3 h.

4885 Flash Script Analysis
An introduction to the dynamics of play structure; specific readings from historical and contemporary dramas
3 h.

4886 Modern Drama
Survey of the major works of drama
3 h.

4887 Base Playwriting
Emphasis on playwriting with special emphasis on the overall play: analysis and discussions of original student writing
3 h.

4892 Director I
Study of fundamental techniques for translating dramatic values of plays to stage; consideration of director's needs and production procedure
Prerequisite: 4885 or equivalent
3 h.

4893 Director II
The art of play directing with emphasis on the director as creative artist. Prerequisite: 4877
3 h.

4894 Production
Production experience under the guidance of faculty member: formation of a creative team essential for the successful production of a play, the relationship of actors, actors, and audience to the production
3 h.

4895 Production
Production process to include plays, actors, properties, costume, set, and stage and set performance, casting, and student production experience in these areas. May be repeated three times. Prerequisites: 4877 and 4885
3 h.

4896 Voice Improvement
Practical introduction into voice and speech for public speaking, reading, dramatic reading, and acting
3 h.

4897 Oral Interpretation of Literature
Introduction to the principles and practice of reading literary prose and poetry to develop critical consciousness, analysis, interpretation, and critical thinking for students desiring education in English and Education
3 h.

4898 Senior Design Project
Facultly-supervised project in the student's interest area
3 h.

4899 Senior Thesis
3 h.

For Undergraduates and Graduates

48975 Costume History
Survey and critical and artistic history of costume from their origins to the present. Sequence: 48975 and 48976
3 h.

48976 Workshop in Technical Design and Execution: An Introduction
Practical experience in design and execution of technical needs. Prerequisite: 48975
3 h.

48977 Workshop in Lighting Design and Execution: An Introduction
Practical experience in stage lighting and production, with emphasis on the role of light in performance. Prerequisite: 48976
3 h.

48978 Workshop in Stage Decor: An Introduction
Practical experience in set design, with emphasis on the role of set design in performance. Prerequisite: 48976
3 h.

48979 Workshop in Stage Decor: An Introduction
Practical experience in set design, with emphasis on the role of set design in performance. Prerequisite: 48976
3 h.

48980 Workshop in Lighting Design and Execution: An Introduction
Practical experience in stage lighting and production, with emphasis on the role of light in performance. Prerequisite: 48976
3 h.

48981 Workshop in Stage Decor: An Introduction
Practical experience in set design, with emphasis on the role of set design in performance. Prerequisite: 48976
3 h.

48982 Workshop in Stage Decor: An Introduction
Practical experience in set design, with emphasis on the role of set design in performance. Prerequisite: 48976
3 h.

48983 Workshop in Lighting Design and Execution: An Introduction
Practical experience in stage lighting and production, with emphasis on the role of light in performance. Prerequisite: 48976
3 h.

48984 Workshop in Stage Decor: An Introduction
Practical experience in set design, with emphasis on the role of set design in performance. Prerequisite: 48976
3 h.

48985 Workshop in Lighting Design and Execution: An Introduction
Practical experience in stage lighting and production, with emphasis on the role of light in performance. Prerequisite: 48976
3 h.

48986 Workshop in Stage Decor: An Introduction
Practical experience in set design, with emphasis on the role of set design in performance. Prerequisite: 48976
3 h.

48987 Workshop in Lighting Design and Execution: An Introduction
Practical experience in stage lighting and production, with emphasis on the role of light in performance. Prerequisite: 48976
3 h.

48988 Workshop in Stage Decor: An Introduction
Practical experience in set design, with emphasis on the role of set design in performance. Prerequisite: 48976
3 h.

48989 Workshop in Lighting Design and Execution: An Introduction
Practical experience in stage lighting and production, with emphasis on the role of light in performance. Prerequisite: 48976
3 h.

48990 Workshop in Stage Decor: An Introduction
Practical experience in set design, with emphasis on the role of set design in performance. Prerequisite: 48976
3 h.

48991 Workshop in Lighting Design and Execution: An Introduction
Practical experience in stage lighting and production, with emphasis on the role of light in performance. Prerequisite: 48976
3 h.

48992 Workshop in Stage Decor: An Introduction
Practical experience in set design, with emphasis on the role of set design in performance. Prerequisite: 48976
3 h.

48993 Workshop in Lighting Design and Execution: An Introduction
Practical experience in stage lighting and production, with emphasis on the role of light in performance. Prerequisite: 48976
3 h.
Second Semester
53:163 Transportation Systems Analysis 3 s.h.
102:261 Problems in Transportation and Land Use 3 s.h.
44:236 Travel Demand Modeling 3 s.h.
One of the following courses:
53:199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h.
53:199 Research: Civil and Environmental Engineering M.S. Planning Elective 3 s.h.
53:199 Research: Civil and Environmental Engineering M.S. Transportation Course 3 s.h.

Third Semester (narratively summary)
53:198 Individual Investigations: Civil and Environmental Engineering 3 s.h.
53:199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h.
Technical Elective 3 s.h.
Technical electives are advanced courses in engineering, operations research, computer-aided design, or economics. Specific course requirements are sufficiently flexible to conform to a student's graduation schedule and desired area of specialization. Applications should be made through the Graduate College and the Department of Civil and Environmental Engineering.

Geography
The Department of Geography offers the M.A. and Ph.D. degrees with a specialization in transportation systems analysis. The transportation specialty draws on the resources of the College of Engineering, the Department of Economics, and the Graduate Program in Urban and Regional Planning, as well as the Department of Geography. The specialty has a strong quantitative orientation and is designed to provide students with a broad range of skills relevant to transportation and urban and regional analysis. It also helps students develop an appreciation of political and organizational considerations affecting transportation systems and of the exigencies of practical problem solving. M.A. students typically take five courses in transportation and urban and regional analysis, plus four advanced mathematics courses, and four additional courses in geography or economics. The M.A. degree is available with or without a thesis. If a thesis is prepared, it can substitute for two of the courses. Students who have studied calculus as undergraduates can complete the master's program in four semesters. Students who have not studied calculus as undergraduates or who have research or teaching assistantships may require an additional one or two semesters to complete the program.
A typical master's level program includes the following courses:
First Semester
44:181 Statistical Methods in Decision Making and Location Theory 3 s.h.
44:201 Geographical Analysis I 2 s.h.
44:202 Transportation and Land Use 3 s.h.
44:236 Urban Transportation Planning 3 s.h.
44:238 Research Seminar: Staff 1 s.h.

Second Semester
44:181 Statistical Methods in Decision Making and Location Theory 3 s.h.
44:201 Geographical Analysis I 2 s.h.
44:202 Transportation and Land Use 3 s.h.
44:238 Geographical Analysis II 2 s.h.
44:238 Research Seminar: Staff 1 s.h.

Third Semester
44:203 Urban Transportation Planning 3 s.h.
44:134 Methods of Transportation Analysis 3 s.h.
44:238 Research Seminar: Staff 1 s.h.

Fourth Semester
44:238 Urban Transportation Planning 3 s.h.
44:170 Deterministic Operations Research 3 s.h.
44:238 Regional Development: Policy and Planning I 3 s.h.

Ph.D. students, in addition to taking the courses recommended for master's students, are strongly encouraged to take advanced courses in areas such as economics, operations research, regional geography, and policy. Ph.D. students also are required to undertake original research leading to the preparation of a dissertation. Applications should be made through the Graduate College and the Department of Geography.

Urban and Regional Planning
The Graduate Program in Urban and Regional Planning offers the M.A. or M.S. degree with a sectoral major in transportation. Students complete an integrated core curriculum during the first year, the core consisting of courses in planning economics and public finance, analytic methods, planning theory, and collective decision making, law, and information presentation. The second year is devoted to a sectoral 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 examine policy issues in transportation, devise workable options, evaluate these optional 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: the sectional major constitutes a minimum of 9 semester hours and electives are taken to complete the remaining hours. If the thesis option is selected, up to 6 semester hours of sectional major credit are awarded. Students may elect to complete an additional 2 semester hours of course work in one of an internship, bringing the total to 59 semester hours.

A typical transportation sectional major program includes the following courses:

**First and Second Semesters**

Core Courses (See "Urban and Regional Planning")

**Third Semester**

102.215 Field Problems in Planning 3 s.h. 
102.369 Transportation Policy and Planning 3 s.h. 
102.369 Transportation Program Seminar 1 s.h.

Two of the following courses:

44.194 Methods of Transportation Analysis 3 s.h. 
50.262 Urban Transportation Planning 3 s.h. 
Planning Elective 3 s.h.

**Fourth Semester**

102.261 Problems in Transportation and Land Use 3 s.h. 
Three of the following courses:

102.262 Transportation Regulation and Policy Analysis 1 s.h. 
53.163 Transportation Systems Analysis 3 s.h. 
44.236 Travel Demand Modeling 3 s.h. 
Planning Elective 3 s.h.

Which of the optional transportation courses a student selects depends on individual interest. Elective courses typically selected include:

102.234 Project Impact Analysis 3 s.h. 
102.236 Capital Facilities Planning and Finance 3 s.h. 
102.245 Energy and Public Utility Policy and Planning 3 s.h. 
102.295 Regional Development: Policy and Planning I 3 s.h. 
102.296 Development Finance 3 s.h.

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

**Curriculum Structure**

The planning curriculum comprises a 48-semester-hour major or a smaller (plus internship) program encompassing two academic years. This includes 27 semester hours of core courses, 9 semester hours of sectional major electives, and 12 semester hours of free electives. The curriculum is based on the general philosophy that planners must develop the theoretical and

analytical skills that permit them to identify issues and recommend alternative ways for solving these issues, as well as both the professional skills (e.g., report writing, presentation, and briefing, team management) that allow them to function effectively in various organizations and political environments. Students thus become well-informed in topics such as economic theory, quantitative methods, information presentation techniques, and approaches to citizen involvement.

**Core Curriculum**

At the heart of the University of Iowa planning program is a variety of integrated core curriculum, which occupies the first academic year. Its purpose is to provide a rigorous foundation for analyzing social problems and public policies.

The function of the core is to develop an understanding of the institutions—the social, economic, political, administrative, and legal systems—that provide the context for policy analysis and constrain public choices; a capability for identifying social goals and normative criteria for evaluating public policies; and analytic skills—both quantitative (e.g., statistics, forecasting, surveys, regional analysis) and qualitative—in total, the core accounts for 27 semester hours.

Courses in the core curriculum are as follows:

**First Semester**

102.203 History and Theories of Planning 3 s.h. 
102.269 Economics for Policy Analysis I 3 s.h. 
102.299 Planning Law and Legislation 3 s.h. 
102.210 Introduction to Analytic Methods 3 s.h.

**Second Semester**

102.204 Collective Decision Making 3 s.h. 
102.296 Economics for Policy Analysis II 4 s.h. 
102.211 Intermediate Analytic Methods 3 s.h. 
102.208 Introduction to Planning Pre-core 2 s.h.

**Third Semester**

102.215 Field Problems in Planning 3 s.h. 
Courses in the first semester are derived primarily from traditional disciplines (economics, law, and statistics), together with an introduction to the theories and practice of planning. Later courses teach students to select and evaluate information and to develop classroom and policy recommendations. As students proceed through the core, increasing reliance is placed on the development of critical judgment and insight in the application of theory through realistic planning problems and actual case studies. Students may request a waiver of any core course on the basis of previous course work.
The Sectoral Major
The second year of the program is directed toward developing an area of concentration, the sectoral major, building on the concepts and skills developed in the core by applying them to a specific profession area. Students fulfill the sectoral major requirement by completing 5 semester hours of credit in courses offered in the planning program and by other departments and schools of the University. Currently, there are five sectoral majors supported by course offerings and faculty within the planning program: transportation, housing and community development, environmental planning, infrastructure planning and economic development. Other sectoral majors can be designed by the student, subject to faculty approval. For example, a student can major in health services planning with appropriate course work in the departments of Hospital and Health Administration or Preventive Medicine and Environmental Health, or in human services planning with courses in the School of Social Work. Other sectoral majors that students have developed include land use, public utility and energy planning, urban management, and historic preservation.

The balance between core courses, a sectoral major, and elective courses allows students the opportunity to acquire a rigorous and diversified foundation for policy planning, specialized knowledge in enhance entry-level employment prospects, and exposure to specialties within the planning field.

Other Requirements
The master's final examination requirement is satisfied by the submission and approval of a portfolio. The portfolio consists of a set of papers and project reports that demonstrates an understanding of fundamental concepts in the core and application of core concepts to the student's field of specialization. The student's knowledge of issues, institutions, and policies in the student's field of specialization is generally made up of revised and polished revisions of research papers and project reports for courses. The portfolio must be approved by a final exam committeee consisting of the faculty members.

A thesis is not required, although a student may petition to write one. Students may register for up to 8 semester hours of thesis credit. In addition, up to 8 semester hours of readings may be taken to develop a thesis topic and prepare a literature review. Three of the readings hours may be applied towards the sectoral major requirement, and the thesis substitutes for the internship.

Students are encouraged to complete an internship in a planning or related agency or organization and to submit a brief paper summarizing and evaluating the experience. Internships usually are completed during the summer. Program faculty take an active role in helping students secure these internships. Alternatively, students may elect to complete an additional 2 semester hours of credit, bringing the total to 56 semester hours.

Joint Programs

Law
The Urban and Regional Planning Program and the College of Law cooperate in administering a program that satisfies the degree requirements leading to an M.A. in planning and a J.D. in law. The program requires four years to complete (or less if the student chooses the accelerated law program). This is a reduction of one academic year from the total requirements of the two programs taken separately. Separate admission to each academic unit is required.

Engineering
A special program involving the College of Engineering and the Urban and Regional Planning Program enables a student to acquire a B.S. in engineering and an M.A. in planning in a total of five academic years. This accelerated program, course work is reduced by one academic year from the separate requirements for the two degrees. Admission to the special program can be applied for by undergraduate students in engineering.

Preventive Medicine and Environmental Health
A joint master's degree option exists between the Urban and Regional Planning Program and the Department of Preventive Medicine and Environmental Health in the College of Medicine. This option results in an M.A. in planning and a M.S. in Preventive Medicine and Environmental Health. A total of 60 to 62 semester hours of credit is required; the two degrees generally can be earned in two and one-half years. Separate admission to each academic unit is required.

Hospital and Health Administration
Students seriously interested in health planning may wish to enroll in a joint program between the Urban and Regional Planning Program and the Department of Hospital and Health Administration in the College of Medicine. This three-year program leads to an M.A. in planning and an M.A. in hospital and health administration. Course work is reduced by one year from the separate requirements of the two programs. Separate admission to each academic unit is required.

Economics
Students specializing in economic development, public utility planning, state fiscal analysis and planning, or other areas may wish to strengthen their skills in economics by enrolling in the joint program in the Department of Economics. The program requires a total of 60 to 63 semester hours of credit and can be completed in five semesters. Students earn an M.A. in planning and an M.A. in economics.

Social Work
For those interested in a career in social service delivery or human services planning, a joint program is offered between urban and regional planning and the School of Social Work, leading to an M.A. in planning and an M.S.W. in social work. A total of 64 semester hours is required for the two degrees, a reduction of 24 semester hours from the requirements of the two programs taken separately. It is possible to complete this program in three years, although some students may require an additional semester. Separate admission to each academic unit is required.

Transportation
The 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 decision sciences. This certificate program allows planning students with sectoral majors in transportation to extend their training and obtain an additional credential. For more information, see "Transportation Studies" in this section of the Catalog.

Financial Aid
Students in the Urban and Regional Planning Program may receive financial support through a variety of sources and arrangements: tuition scholarships, program teaching or research assistantships, contract or grant-funded research assistantships, and internships in local public agencies. These scholarships typically require 10 hours of work per week, under the direction of a faculty member or professional planning staff. Students indicate applications for financial support, and awards are made on the basis of merit, need, experience, and interest. The program has been successful in providing support to most students.

Admission
Admission to the Urban and Regional Planning Program is open to students from any undergraduate major or area of concentration.
Admission is based on Graduate Record Examination (GRE) Academic Test scores (quantitative, verbal, and analytical), letters of recommendation, and undergraduate achievement.

Applicants should submit the application form and three letters of recommendation early in the spring for fall admission. Though applications are accepted until July 15, or by December 15 for spring admission. Full admission is preferred.

Courses
102.009 Cooperative Education Internship 3 s.h.
102.011 Introduction to Planning and Policy Development 3 s.h.
Emergence of urban problems and current policy issues, including the social and political aspects of the resolution of social problems. Financial planning, financing, housing, economic development, and environmental quality.
102.014 Introduction to Environmental Planning 3 s.h.
Introduction of the effects of human activity on the environment, estimation of the economic, political, and ethical context of environmental problems, historical development of environmental laws and policies for protection of the environment.
102.015 Regional Development Policy and Planning 3 s.h.
Analysis of regional growth and development—location of industries, infrastructure development, and development of regional development policies.
102.033 Introduction to Transportation 3 s.h.
Overview of transportation systems, urban and rural transportation needs, highway, air, water, rail, and intermodal transportation, development of transportation systems, and management of traffic and road networks, freight transportation, and economic development as the basis for regional development.
102.049 Urban Transportation 3 s.h.
Public policies, institutions, planning, management, production, pricing, distribution of urban and suburban highway services, energy conservation, city case studies, urban traffic control, railroads, and urban transport systems.
102.050 History and Theories of Planning 3 s.h.
History of U.S. urban growth and changes as a reflection of social and economic forces, theories of urban location, housing, and urban planning philosophies, and the role of open space plans.
102.059 Public Policy Analysis 3 s.h.
Study of public and private theories of decision-making, methodology, policy planning, decision-making, the role of individuals and groups, the politics of urban change, possibilities for systematic planning in public and private decision-making.
102.060 Environmental Policy and Planning 3 s.h.
Fundamental principles of environmental planning-ecosystems, water resources, air pollution, environmental aspects of hearing and noise, land use, economic development, waste management, and environmental policy.
102.061 Planning Law and Legislation 3 s.h.
Fundamentals of legislative development, legal, political, and social determinants of legislation policies, the perspective of constitutional and conflict on the local policy and planning process, enactment of zoning laws and related laws, and consideration of alternatives.
Women's Studies

Chair: Margery Wolf

Professor: Florencio Bass (English), Mertha Chomaitas (Laws), Lida Kerber (History, May Brandt Professor in the Liberal Arts), J. Kenneth Kurz (Religion), Margaret McCord (Religion), Adela Carlucci Morris (English), Carol de Santa Victor (English)

Associate professors: Susan J. Birell (Physical Education and Dance), Isabel R. Bogue (Physical Education and Dance), Debra Coleman (Computer Education), Judy M. French (Spanish and Portuguese), Diane S. Gil (Physical Education and Dance), Junior Hartley (History), Nancy Huebner (Administrative Medicine and Health Sciences), Cecilia Kidder (Sociology), David Rosenthal (Computer Education), Yeone Station (Physical Education and Dance)

Assistant professors: S. Eileen Anstey (Social Work), Florence R. Ralls (Counseling/Women's Studies), Nancy Haney (Health Education), Melba Board (African-American Studies/English), Seraphine Ceccarelli (Psychology), Mary Lou Ewry (English), Linda Johnson (Sociology), Adriana Mordica Redman (Spanish and Portuguese), Leslie Stevens (Journalism and Mass Communication), Diane Vital (Spanish and Portuguese)

Adjunct assistant professors: Howard Kaplan (Social Work)

The Women's Studies Program is a multidisciplinary program focusing on the teaching and research of women in culture, society, and history. Its major goal is to bring to the University community new research on women, which frequently is overlooked by traditional disciplines. By taking courses through many departments, students become acquainted with feminist scholarship and its methodology in the humanities and the social sciences. These courses may be used to establish a field of concentration within the Women's Studies Program or to apply to majors in other disciplines.

Undergraduate Study

Undergraduates interested in Women's Studies may develop programs of study in relation to course work in a major, as part of an area of concentration within a Bachelor of General Studies degree, or as a minor, or as part of electives to satisfy general interest. It is strongly recommended that students consult their academic advisor. Undergraduate students take 331:101 Introduction to Women's Studies, including the optional semester hour associated with it.

Minor

Undergraduate students may complete a minor in Women's Studies by taking 15 semester hours of departmental courses associated with the program, including at least 12 semester hours taken at The University of Iowa in 100-level courses, and maintaining a 2.0 grade-point average in departmental courses. It is strongly recommended that students concentrating in a minor in Women's Studies, including the optional semester hour associated with it.

Graduate Study

Graduate students in master's or doctoral programs may choose a comprehensive area in Women's Studies within existing disciplines. Graduate students who want to pursue the Ph.D. in Women's Studies should file a plan of study for the Ph.D. Interdisciplinary Ph.D. through the Graduate College. Students must be granted admission by a department of the University.

Information on faculty members in various departments who direct graduate study is available from the Women's Studies Program, 365 English-Philosophy Building.

Associated Courses

The departmental courses listed below are associated with the Women's Studies Program and may be applied toward a concentration or a minor in Women's Studies.

In addition to the following courses, many departmental courses offer additional courses focusing on women. Women's Studies courses for University credit also are offered by the Saturday and Evening Class Program and by Guided Correspondence Study.

African-American Women Studies

129:120 Images of Black Women in Modern American Fiction 3 s.h.

129:127 Black Women Writers 3 s.h.

American Studies

45:4 Family and Sex Roles 3 s.h.

45:7 Sex, Race, and Ethnicity 3 s.h.

Communication Studies

341:137 Sex Roles and Communication 3 s.h.

Counselor Education

7C:112 Human Sexuality 3 s.h.

7C:150 Psychological Aspects of Women's and Men's Roles 1-3 s.h.

7C:162 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.

7C:216 Group Leadership in Human Sexuality 2-3 s.h.

7C:262 Marriage and Family Counseling and Psychotherapy 3 s.h.

English

8G:15 The Literary Presentation of Women (general education course) 3 s.h.

8:118 Black Women Writers 3 s.h.

9:434 Seminar: Twentieth-Century British Literature 3 s.h.

History

16:102 Problems in Human History: Communities, Families, and Culture (general education course) 3 s.h.

16:105 Problems in Human History: Women, Politics, and Society (general education course) 3 s.h.

16:181 Society and Gender in Europe 1450-1750 2-3 s.h.

16:182 Society and Gender in Europe 1750-1950 3 s.h.

16:254 Readings in European History Women 3 s.h.

16:284 Seminar: History of American Women 3 s.h.

16:267 Readings in History of American Women 3 s.h.

Home Economics

17:117 Human Sexuality 3 s.h.

Law

91:250 Sex-Based Discrimination 2-3 s.h.

Nursing

96:112 Human Sexuality 3 s.h.

96:216 Group Leadership in Human Sexuality 3 s.h.

Psychology

31:116 Psychology of Sex Differences 3 s.h.

Rhetoric

10:13 Rhetoric 4 s.h.

Social Work

42:112 Human Sexuality 3 s.h.

42:205 Women in Administration 3 s.h.

42:216 Group Leadership in Human Sexuality 3 s.h.

42:250 Advanced Human Sexuality 3-4 s.h.

Sociology

34:135 Sociology of Sexuality: Contemporary Social Patterns 3 s.h.

34:182 Courtship, Marriage, and Alternative Life-Styles 3 s.h.

*Only certain sections of these courses are women's studies courses.
College of Business Administration

Accounting ........................................ 246
Economics ....................................... 248
Finance ........................................... 251
Industrial Relations and Human Resources ........................................ 252
Management Sciences ............................. 254
Marketing ......................................... 256

Dean: George Dally
Senior assistant dean: William L. Berry
Associate deans: William P. Albrecht, Howard M. Sloss, Richard C. Pignatalli
Assistant dean: John T. Mariani, Jr.
Degrees offered: B.B.A., M.B.A., M.A., Ph.D.

Philips Hall
The College of Business Administration is organized into six academic departments: accounting, economics, finance, industrial relations, human resources, 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 external agencies of the college: Industrial Relations Institute, Institute for Economic Research, Institute for Insurance Education and Research, Labor Center, Management Center, and Small Business Development Center.

Undergraduate Program

Bachelor of Business Administration

The college offers the Bachelor of Business Administration (B.B.A.) degree in all six departments. B.B.A. students complete background studies either in the College of Liberal Arts or in a business degree in the respective college that meets the student's designated major.

The college's B.B.A. curriculum requires 120 semester hours for graduation, with at least 45 semester hours in business courses and at least 48 semester hours in non-business courses. Limited specialization is elected by the student's designated major.

The last 30 (or 45 of the last 60) semester hours must be earned in residence following admission to the College of Business Administration. At least 21 semester hours of credit in courses offered by the College of Business Administration and at least 9 semester hours of credit in the student's major must be earned at the University of Iowa.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average in all course work, in all course work attempted at the university, in all business course work attempted, in all business course work attempted at the university, in all course work attempted in the major, and in all business course work attempted in the University in the major.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Rhetoric 101 and 102, or 103 8 s.h.
- 22M:17 and 225:8 Quantitative Methods I and II 8 s.h.
- 22M:25, 22M:26 and 225:120 6 s.h.

- 6E:1 Principles of Microeconomics 3 s.h.
- 6E:2 Principles of Macroeconomics 3 s.h.

- 6A:1 Introduction to Financial Accounting 3 s.h.
- 6A:2 Introduction to Managerial Cost Accounting 3 s.h.
- Natural science (excluding math) 3-4 s.h.
- Foreign civilization and culture (6 s.h.) 3 s.h.
- Humanities (excluding 6G1 Interpretation of Literature) 3 s.h.
- Psychological/psychology (11:1, 14:1, or 34:2) 3 s.h.
- Social psychology (21:15 or 24:13) 3 s.h.
- Computer Analysis (25:70, 25:72, 25:78, or 25:154) 3 s.h.
- 6E:7 Statistical Analysis 3 s.h.
- 6G:7 Introduction to Law 3 s.h.
- (3 s.h.) 3 s.h.
- (5 s.h.) 3 s.h.
- (6 s.h.) 3 s.h.

In addition, the student 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 science, and marketing. With the exception of the major in business administration, the requirements for each are established by the departments of the college.

Major in Business Administration

This major permits students to pursue a less specialized curriculum than is provided by any of the other majors in the college. It also allows students to concentrate in areas where majors are not available, such as international business, but in which courses are offered in departments within the college.

The requirements for the major in business administration are:

- Six business courses (18 s.h.) numbered above 200, including at least four of the following:
  - 6A:133 Business Statistics
  - 6E:103 Microeconomics
  - 6E:117 Intermediate Financial Management
  - 6E:161 Individual Behavior in Organizations

- 6E:180 Management Information Systems

- 6L:158 Personnel Management

- GM:134 Marketing Research

In addition to the required grade-point averages listed above, students in this major must have a grade-point average of at least 2.0 on all courses taken from the list above and on all business courses numbered above 100.

Students majoring in business administration may substitute 6E:84

Production Management, for 6L:100 Administration.

Minors

Non-Business Minors

An undergraduate student in the College of Business Administration may elect to complete a minor in another college of the University. For example, a student interested in international business might choose a foreign language as a minor. For the minor requirements, the student should consult with an advisor in the relevant department. To have the minor recorded on his or her transcript, the student must complete the "Minor" section on the B.B.A. degree application form before submitting it to the Registrar.

Business Minors

Students majoring in another college of the University may elect a minor in business administration. The courses listed below satisfy all requirements for the minor. At least 15 semester hours of courses taken for the minor must be completed at The University of Iowa. A grade-point average of at least 2.0 is required on all courses taken for the minor and on all of those courses taken at Iowa.

A computer programming course

- Business calculi (22M:11, 22M:25, or 22M:35) 3 s.h.
- Statistics (225:8 or 225:15) 3 s.h.

- 6E:1 Principles of Microeconomics 3 s.h.
- 6E:2 Principles of Macroeconomics 3 s.h.
- 6A:1 Introduction to Financial Accounting 3 s.h.

- 6A:2 Introduction to Managerial Cost Accounting 3 s.h.
- (6M:100 Introduction to Marketing) 3 s.h.
- (6E:100 Introductory Financial Management) 3 s.h.
- (6L:100 Administrative) 3 s.h.
- (6L:47 Introduction to Law) 3 s.h.

Students who will have completed all required courses for the minor in business administration should indicate a business minor on the application for degree card, which is filed in the Registrar's Office in the student's final semester.

Recognition for Academic Achievements

Dean's List

Students who achieve grade-point averages of 3.5 or above during a given semester on 12 or more semester hours of graded work and who have no hours of 0.0 or 0.0 are recognized by inclusion on the dean's list for that semester.
President's List
Students earning a 4.0 grade-point average for two consecutive semesters (excluding summer sessions) at 12 or more semester hours of graded work in the two semesters who have no hours of 1.0 or 0.0 semester credit are recognized by inclusion on the President's List.

Honors
The College of Business Administration Honors Program provides opportunities for students in the college to undertake advanced work and independent study in their majors and to work closely with faculty and other honors students. Its purpose is to challenge superior students to reach their academic potential. Freshmen may take specially designed sections of the introductory accounting and economics courses. Each department offers students a variety of options for undertaking honors work in the major. There is also a college-wide honors seminar in which all juniors and seniors in the program participate. Successful completion of departmental and college requirements leads to a Bachelor of Business Administration "with honors" (see below).

Prefreshmen students interested in the Honors Program are encouraged to participate in the College of Liberal Arts Honors Program until they are admitted to the College of Business Administration. This will permit them to take advantage of the offerings of the Liberal Arts Honors Program: Honors Seminar, which plans a variety of social and cultural activities each year. Students should apply for admission to the College of Business Administration Honors Program when they apply for admission to the college, and they must apply no later than the fourth week of the fall semester of their freshmen year. For additional information students should contact the Academic Programs Office, 121 Phillips Hall.

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 upon grades and upon the completion of special work as outlined by the college and the major department.

To be eligible for either form of recognition, the student must complete the fall 90 semester-hour residence in an undergraduate college at the University of Iowa, of which at least 45 semester hours must have been completed prior to the student's 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
The college admission standards are set by the undergraduate program committee. The college normally admits undergraduates at the beginning of the current year. Students are eligible for admission to the college after they have completed 56 semester hours and have satisfied the common requirements in quantitative methods, accounting, and economics with a grade-point average of at least 2.25 on the courses used to satisfy these requirements, on all college-level courses taken, and on all courses undertaken at The University of Iowa. Fulfillment of the minimum requirements does not ensure admission, since these standards may be changed as necessary in order to keep qualified student enrollments in line with available instructional resources.

No more than 60 semester hours or equivalent of transfer credit will be accepted for a student transferring from a two-year institution. Transfer credits for business courses taken during the freshman and sophomore years are counted toward the B.B.A. degree only if such courses are normally offered as lower-division courses at The University of Iowa.

Credit by Examination
Students may earn up to 32 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) of the College Entrance Examination Board are used. It is possible to receive credit for some of the common requirements of the college only if the CLEP examinations is available from the Liberal Arts Office of Academic Programs.

Maximum Schedule
Course schedules of more than 18 semester hours for a semester or 36 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 the approval of the advisor and instructor. Courses may be dropped during the first ten weeks of the semester or first five weeks of the summer session with the approval of the advisor and instructor. A student must seek the approval of the dean in order to add or drop a course after these deadlines.

Undergraduates will receive the mark of W for any course dropped after the third week of the semester or first one and one-half weeks of the summer session.

Pass-Nonpass
Of the total semester hours required for a B.B.A. degree, up to 16 to be repeated, or on a pass-nonpass basis with the consent of the advisor and instructor. However, a student may not count more than 8 semester hours of pass-nonpass credit in the last 60 semester hours of course work. A student must be in good academic standing to be eligible for the pass-nonpass option. The maximum of two pass-nonpass courses may be taken in one semester.

Courses that are taken to satisfy the common business requirements may not be taken pass-nonpass. Any courses may be counted in the student's major. Pass-nonpass registration must be completed during the first three weeks of a semester or the first two weeks of a summer session. For courses taken on a pass-nonpass basis, an earned grade of C- or above is recorded as a P, an earned grade of D or F is recorded as an N.

Second-Grade-Only Option
A student may elect to repeat a course with only the new grade being computed into his or her grade-point average. This option can be elected only prior to the time of completion of a course for which the repeated course is prerequisite. This may be applied to a maximum of 16 semester hours of work and may be used only once per course.

Students who want to use this rule should follow the usual procedures for the course he or she is taking or the course taken in the previous semester. The form must be submitted by the end of the third week of the semester (or final day of the one-half weeks of the summer session). Liberal Arts prerequisites majors must adhere to the second-grade-only option procedures and deadlines set by the Liberal Arts Office of Academic Programs, 121 Phillips Hall. Under the provisions of this option, the instructor will mark the permanent record to show that a particular course has been repeated. Both grades will remain on the permanent record, but only the second one will be used in calculating the grade-point average.

Current procedures of counting both grades in instances where the student repeats a course will be continued unless the student follows the above procedure.

The course must be taken the second time under the same circumstances and with the same grade option as it was taken the first time.
Interdepartmental Graduate Programs

The following interdepartmental graduate programs are offered in the College of Business Administration: Master of Arts (M.A.) in business administration, Master of Business Administration (M.B.A.) and Doctor of Philosophy (Ph.D.) in business administration. Joint degree options allow N.A. in business administration or M.B.A. candidates to pursue a second graduate degree in another college. For information on the Master of Arts (M.A.) in accounting, see "Accounting" in this section of the Catalog. For information on graduate programs in economics, see "Economics" in this section of the Catalog.

Master of Business Administration

The Master of Business Administration (M.B.A.) program is designed to prepare students for professional administrative careers in the business or public sector. The program enhances the student's career opportunities and provides the commercial and government sectors with the professional personnel required in a complex, modern economy.

The curriculum is designed for college graduates in any field. Previous courses in business are not required for admission. Depending on the student's undergraduate academic background, 30 to 62 semester hours are required. Any of the eight foundation courses may be waived if the student demonstrates equivalent work or experience in that subject. A minimum of 24 semester hours of coursework must be completed in residence at the University of Iowa after admission to the M.B.A. program.

Accelerated Professional Track

Highly qualified undergraduate students in the colleges of Liberal Arts or Engineering at the University of Iowa may be admitted to the Accelerated Professional Track (APT) program toward the M.B.A. degree. These students can take the M.B.A. foundation courses as electives in their undergraduate program so that they can earn both the bachelor's and M.B.A. degrees in less time than would normally be required. APT students also agree to have a cooperative educational placement in a business firm as a part of their program. After earning the bachelor's degree and beginning full-time graduate study, APT students become eligible for special graduate fellowships sponsored by business firms.

Interested engineering students should have completed their junior year of study, earned a 3.5 grade-point average or better, and indicated their interest in pursuing both degree programs on a full-time basis. Liberal arts students should have completed at least 60 semester hours of course work in that college with a grade-point average of about 3.5. Further information on the APT program is available from the Academic Programs Office, 121 Phillips Hall.

Foundation Courses (24 semester hours)

64102 Financial Accounting—M.B.A. 3 s.h.
64190 Consumer and Firm Behavior 3 s.h.
64191 National Income Analysis 3 s.h.
64194 Managerial Finance—M.B.A. 3 s.h.
6K103 Computer Methods—M.B.A. 3 s.h.
6K197 Quantitative Methods—M.B.A. 3 s.h.
6L105 Management of Organizations—M.B.A. 3 s.h.
6K256 Marketing Management—M.B.A. 3 s.h.

In the M.B.A. integrated core courses, students continue the broad study begun in the sequence of foundation courses listed above and pursue more advanced study associated with their own career objectives. Following the integrated core course requirements:

Integrated Core (21 semester hours)

6L198 Society, Law, and Business—M.B.A. 3 s.h.
6L214 Managerial Accounting—M.B.A. 3 s.h.
6L261 Administrative Science I—M.B.A. 3 s.h.
6K255 Administrative Policy—M.B.A. 3 s.h.
6L255 Administrative Policy—M.B.A. 3 s.h.
6K271 Statistical Methods—M.B.A. 3 s.h.
6K273 Managerial Economic Theory—M.B.A. 3 s.h.
6K276 Operations Research—M.B.A. 3 s.h.

Electives (15 semester hours)
The student's choice of electives must be approved by the Academic Programs Office.

Off-Campus M.B.A.

Courses are offered during evening hours at 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 in the Quad Cities with the Quad Cities Graduate Study Center in Rock Island, Illinois. A student pursuing the degree in the evening usually takes one or two courses each semester and completes the program in four to six years. A limited number of M.B.A. courses are offered in Iowa City during the evening.

Executive M.B.A.

A special program, the Executive M.B.A., also leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Course work is presented in two academic years. Classes begin with one full week in Iowa City followed by classes one day a week alternating Fridays and Saturdays. Participants progress through the program together as a single group.

Further information on the program, fees, and application procedures may be obtained by writing to the Academic Programs Office, College of Business Administration.

Master of Arts

The Master of Arts degree program in business administration is designed for students seeking specialization in one or several areas of business administration. It permits a research emphasis that qualifies students for research or teaching positions or employment in business.

The program is available with or without thesis and is flexible, permitting specialization according to students' interests and objectives. Students may select a major in administrative studies, finance, industrial relations and human resources, insurance, management information systems. The minor may be acquiring more appropriate combinations within the College of Business Administration or from outside the college.

All students in the M.A. program must satisfy the common body of knowledge requirement of the American Assembly of Collegiate Schools of Business (AACSB). This means that candidates' undergraduate or graduate course work must include study in accounting, quantitative methods, organizational behavior, management, finance, marketing, and one economic and legal course designed to profit or nonprofit organizations.

Requirements for the Master of Arts degree with thesis include:

Major area 9 s.h.
Minor area 6 s.h.
Economic theory and organizational behavior 6 s.h.
Electives 6 s.h.
Thesis 3 s.h.
Total 30 s.h.

Requirements for the Master of Arts degree without thesis include:

Major area 12 s.h.
Minor area 6 s.h.
Economic theory and organizational behavior 6 s.h.
Electives 6 s.h.
Research methodology 3 s.h.
Research reports (two) 2 s.h.
Total 35 s.h.
Admission
Applicants seeking admission to graduate study in business must submit the Graduate College application form and fee, official transcripts of all course work taken, and official Graduate Management Admission Test (GMAT) scores to the Admissions Office, Calvin Hall. Three letters of recommendation from former instructors or employers should be submitted to the Academic Programs Office, College of Business Administration.

Graduate Record Examination (GRE) Applicants must also submit their GRE scores in place of GMAT scores in applications for the Ph.D. program in business administration. See the "Graduate College" section of the Catalog for more information.

Application Information
A graduate application packet may be obtained from the Admissions Office, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242.

A complete application file requires the following. A completed application form and fee submitted to the Admissions Office, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242.

Official transcripts of all undergraduate and graduate work submitted to the Admissions Office by each institution attended.

Official Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) scores submitted to the Admissions Office.

At least three references from former instructors or employers submitted to the Academic Programs Office, College of Business Administration, The University of Iowa, Iowa City, Iowa 52242.

Foreign nationals (those whose English is not the primary language) must submit an official score of 550 or more on the Test of English as a Foreign Language (TOEFL).

Application Deadlines
The application deadlines for M.B.A. M.A. in Business Administration, and Ph.D. in Business Administration are as follows. M.B.A. program (fall and spring entrance only)

March 1—Foreign applicants for fall or spring.

July 1—U.S. citizens and permanent residents applying for fall enrollment.

November 15—U.S. citizens and permanent residents applying for spring enrollment.
M.A. in Accounting and 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 seeking financial assistance from The University of Iowa.

May 1—U.S. citizens and permanent residents applying for summer enrollment.

July 15—U.S. citizens and permanent residents applying for fall enrollment.

October 1—Foreign applicants applying for spring enrollment.

December 1—U.S. citizens and permanent residents applying for spring enrollment.

Ph.D. 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 summer or fall enrollment. Applications received by February 1 will receive priority for consideration for financial aid.

October 1—Foreign applicants for spring enrollment.

October 6—U.S. citizens and permanent residents applying for spring enrollment.

Joint Programs

Joint programs allow students to pursue concurrently an M.A. or M.B.A. in the College of Business Administration and a J.D. in the College of Law, or an M.A. in Library and Information Science in the School of Library and Information Science. Such programs allow students to earn both degrees more rapidly by counting a portion of their graduate course work toward both degrees. These joint degree programs carry an exchange of 12 semester hours each between the J.D. and the M.A. or the M.B.A. 1 semester hours each between the M.A. in Library and Information Science and the M.B.A.

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.)

Facilities

The College of Business Administration is located in Philips Hall, a high-rise building designed especially for programs of the college. The building contains seminar and conference rooms, a computer laboratory, an auditorium, and the Business Library. In addition to a wide range of classroom facilities, extensive research materials for business and economics are maintained in the Business Library, and the facilities of the Weeg Computing Center are available to all students. Additionally, students have direct access to a complete computer laboratory within the college. The laboratory serves the instructional programs of the college, and the staff maintains a current library of computational programs and data tapes to serve user needs.

Industrial Relations Institute

The Industrial Relations Institute is designed to bring faculty and students together with people in industrial relations for the purposes of curriculum matters and research, and to conduct continuing education seminars and workshops for practitioners in the field of industrial relations.

Institute for Economic Research

The Institute for Economic Research engages in continuing economic research and establishes a formal mechanism for providing interaction with and economic advice to industry and government. The institute's main objectives are: to provide economic information, service, and advice on a continuing basis to business and to public agencies; to provide a state focal point for applied economic research; and to promote and enhance academic research and teaching in economics.

Institute for Insurance Education and Research

The Institute for Insurance Education and Research is the college's continuing education arm in the field of insurance. The institute conducts schools and seminars throughout the year at the University of Iowa campuses in Iowa City and at other locations across the country. It also engages in contract research related to insurance for public and private organizations.

Labor Center

The Labor Center serves as the continuing education division of the college in the areas of labor education. Labor Center staff members have combined on-campus and off-campus programs in order to reach as many people as possible. The staff members target their instruction to the specific needs of the labor movement in Iowa.

Management Center

The Management Center, a major continuing education branch of the college, provides relevant information to management and government representatives in Iowa. Current administrative, behavioral science, and management knowledge related to the working life of people in organizations is disseminated through on- and off-campus conferences.

Small Business Development Center

The Small Business Development Center was created in 1981 to provide management assistance without charge to small business owners and persons interested in starting a small business. The center provides individual counseling to small businesses and also 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 Philips Hall. A placement media library, student placement counseling activities, and modern 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 M.B.A. students
See individual department listings for additional M.B.A. courses.

3648 Cooperative Education Internship
M.B.A. 0 s.h.

4212 Winter Conservation Skills—M.B.A. 1 s.h.
Written for business courses.

4212 Oral Communication Skills—M.B.A. 1 s.h.
One composition skills for business courses.

Accounting
Head: John H. Smith
Professor: B.L. Barese, Daniel W. Collins (Assistant Professor), William C. Lenard, John H. Smith
Associate professors: Douglas V. De Jong, Richard A. Gersande, Albert S. Schmiedak
Assistant professor: C. Edward Arrington, Jere R. Fraser, Thomas J. Laxendor
Degree offered: B.B.A., M.A., M.B.A., Ph.D.

Professional Program
The Professional Program in Accounting at The University of Iowa is a three-year upper-division and graduate program that leads to a Master of Arts (M.A.) degree in accounting with a major field in accounting. Students in the M.A. program receive the B.B.A. degree after successful completion of the first two years of the Professional Program in Accounting. The M.A. program (three-year program) is designed to help students develop the technical proficiency and the conceptual, analytical, and communication skills required in the accounting profession. Students who wish only undergraduate-level preparation for the Certified Public Accounting (CPA) or Certified Management Accountant (CMA) examinations may meet their goal by completing the first two years of the professional program. The student in the M.A. program (three-year program) is prepared to complete the Professional Program in Accounting after completing 36 semester hours of course work, including the six courses required for the Professional Program in Accounting. The six courses required for the Professional Program in Accounting include: Financial Accounting, Managerial Cost Accounting, or the equivalent, and four electives chosen from the Professional Program in Accounting.

Program I
This program is for students completing their pre-professional program at The University of Iowa.

Undergraduate students at The University of Iowa are eligible for admission to the Professional Program in Accounting after completing 36 semester hours of course work. Students interested in the program should review the College of Business Administration, the prerequisites for admission to the Program, and the admission requirements of the College of Business Administration, and the admission requirements of the M.B.A. program. Students not admitted to the M.B.A. program may apply for admission to the Professional Program in Accounting after completing two years of a preprofessional program that satisfies the general education requirements of the University, the business requirements of the College of Business Administration, and the admission requirements of the M.B.A. program. For additional information, contact the College of Business Administration.
Economics

Chaler Andrew J. Politio
Professor: William Albrecht, (retired), Bernard, Andrew Daugherty, Seraphim Eden, Gary Felton, Robert Fendley, John Fisher, Tanous Frischknecht, Byron Joseph, Donald McCluskey, George Neuman, George Neuman, (retired), Andrew Politico, N.E. Sivas, Larry Sprung, Calvin Taylor

Professor Emeritus: Anthony Costantini, Paul Olson, George Sivin

Associate professor: Michael (Mac) Dallas, Russell Cooper, Joel Horvitz, John Kersten, Form Neuson, Raymond Riseman, Charles Whitman

Assistant professors: Tadayuki Gotoh, Joseph Cooper, John Jack

Adjunct professor: Richard Zecher

Degrees awarded: B.A., B.S., B.A., M.A., Ph.D.

Economics is concerned primarily with analysis and description of the production, distribution, and consumption of goods and services in society. It involves the systematic study of topics such as wealth and poverty, money and banking, income and consumption, government expenditures and the economy, property and the family, inflation and unemployment, big business and labor unions, and hundreds of other matters that intimately affect the way people live.

The purpose of studying in economics is to develop an understanding of how complex economic systems work and to acquire training in the methods of economic analysis, which can be applied to a wide range of economic problems. The department offers courses to meet the needs of the economics as well as the major.

Undergraduate Programs

The bachelor's degree programs in economics provide an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations, in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics is also regarded as excellent preparation for law and for graduate study in fields such as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate degrees in economics—the B.A. and B.S. degrees in the College of Liberal Arts and the B.B.A. in the College of Business Administration.

The B.A. and B.S. programs are designed for a well-rounded liberal arts education. Requirements for the B.B.A. degree emphasize instruction in the business fields of accounting, finance, marketing, business law, and management.

For descriptions of the B.A. and B.S. degree programs in economics, see "Economics" in the "College of Liberal Arts" section of the Catalog.

Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. degree in economics requires 18 semester hours in 100-level economics courses, including:

GE 103 Microeconomics
GE 105 Macroeconomics

Graduate Programs

Master of Arts

The department offers a three-semester M.A. program in applied economics, with opportunities to specialize in environmental economics, urban and regional economics, international economics and finance, financial and monetary economics, the public sector, health economics, economic planning and budgeting, business and managerial economics, or labor economics and labor relations.

Courses required for the M.A. degree include:

GE 183 Statistical Methods in Econometrics
GE 202 Price Theory
GE 204 Macroeconomics I
Economic history or history of economic thought
GE 184 Methods of Quantitative Economics

In addition to the above core courses (15 semester hours), the student has the option of taking 13 hours of electives and writing a thesis (4 semester hours), for a minimum total of 32 semester hours of graduate credit; or taking 15 hours of electives and writing a research paper in each of two 200-level economics courses, for a minimum total of 24 semester hours of graduate credit.

Students who perform well in the first semester of the M.A. program may apply for transfer into the Ph.D. program at that time, without loss of credit.

Joint M.A. Programs

The department collaborates with the Department of Geography in a joint M.A. degree and with the College of Law in a joint M.A.-J.D. degree. In these programs the economics department accepts up to 9 semester hours of course work from the other departments as credit toward the M.A. degree in economics, and the other departments accept graduate credits in economics toward their degree.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses, a set of major area courses, and a dissertation.

The core requirements:

First Semester
GE 180 Microeconomics for Economists I
GE 183 Statistical Methods in Econometrics
GE 204 Microeconomics I
GE 205 Macroeconomics I

Second Semester
GE 183 Microeconomics for Economists II
GE 205 Microeconomics II
GE 206 Macroeconomics II

Third Semester
GE 211 Mathematical Economics I
GE 212 Econometrics I

Fourth Semester
GE 222 Econometrics II

An additional 4 semester hours in economic history, history of economic thought, or economic methodology are required. Written examinations in microeconomics and macroeconomics before the second year and a substantial research paper before the beginning of the third year complete the core requirements.

Field Component

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive
80.221 Workshop in Microeconomics
Pharmaceutical economics of antibiotics.

Finance
Chairs: Yvonne Stevenson
Programmer: Walter Kruse (Murray Professor), Walter Reddick, Robert S. Bartlett, Edward A. Hoffman, Howard J. Kegler, Ph.D. (Pharmacology Professor) Esther B. Stack, Ph.D. (Pharmacology Associate Professor) Michael Murray, G. Carl Schmidt

80.222 Workshop in Macroeconomics
Pharmaceutical credit.

Undergraduate Program
The undergraduate finance program deals with the theory, organization, and operations of the financial system from both social and managerial viewpoints. Students are expected to develop analytical abilities and to present their analyses in both written and oral form.

Students graduating at a major in finance may look forward to managerial positions in credit departments or treasury work in commercial or industrial banks, or in non-profit organizations. The education received in consistent with progress toward responsible managerial positions.

Requirements for the Bachelor of Business Administration degree with a finance major are as follows:

80.222 Financial Management
80.223 Investments
80.224 Financial Markets and Institutions
80.225 Intermediate Financial Management

At least three semester hours of accounting beyond the basic core, followed by any two of these:

80.226 Security Analysis
80.227 Commercial Banking
80.228 Case Problems in Financial Management

Graduate Program
See "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses
Primarily for Upper-Division Undergraduates
80.220 Cooperative Education Internship
80.221 Introductory Financial Management

Pharmaceutical planning and financial management in business firms, security markets. Prerequisites: 80.22, 80.222.

80.222 Introductory Financial Management
Principles, economics of management in business firms and markets. Prerequisites: 80.22, 80.222.

80.223 Investments
Principles and methods of financial analysis in business firms and security markets. Prerequisites: 80.22, 80.222.

80.224 Financial Markets and Institutions
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.225 Intermediate Financial Management
Managerial and social problems of the financial management decision process. Prerequisites: 80.22, 80.222.

80.226 Security Analysis
Analysis of corporate securities, financial statement analysis, economic and regulatory environment. Prerequisites: 80.222 or consent of instructor.

80.227 Commercial Banking
Management of commercial banks and other financial institutions emphasizing loan and investment analysis and concepts of real estate, bank, and insurance liabilities in commercial banks. Prerequisites: 80.222 or consent of instructor.

80.228 Case Problems in Financial Management
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.229 Money and Banking
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.230 International Finance
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.231 Corporate Finance
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.232 Financial Institutions
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.233 Financial Markets
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.234 Money and Banking
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.235 International Finance
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.236 Corporate Finance
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.237 Financial Institutions
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.238 Financial Markets
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.239 Money and Banking
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.240 International Finance
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.241 Corporate Finance
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.242 Financial Institutions
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.243 Financial Markets
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.244 Money and Banking
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.245 International Finance
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.246 Corporate Finance
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.247 Financial Institutions
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.248 Financial Markets
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.249 Money and Banking
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.

80.250 International Finance
Principles of the operation of financial markets and the impact of those markets on the real economy. Prerequisites: 80.22, 80.222.
Industrial Relations and Human Resources

Chair: Richard C. Pyper
Professor: Norman T. Kraft
Deborah Schubert, Anthony V. Stroian (Marine Professor)
Associate professors: Jack T. Pintor, Dani G. Calaghier, Thomas F. Gilroy, Nancy B. Hausman, Paul Leung, Richard K. mentor, Richard Piggott, Thomas H. Steele, Duane E. Thompson, Julie F. West
Assistant professors: Rebecca A. Ellis, Cheryl L. Shults

Degrees offered: B.A., M.A., M.B.A., Ph.D.

Students majoring in industrial relations and human resources study experience dealing with labor relations and human resource management. The program is designed to give students a thorough background in these areas of study as well as an understanding of their application to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are blended to include both theoretical and practical aspects of the field.

Graduates of the program are prepared for a variety of jobs, staff, and professional positions in business, government, nonprofit institutions, and education. Work opportunities for which graduates are qualified include personnel management, wage and salary administration, staff benefits, selection and recruitment, performance appraisals, training programs, managerial, supervisory, industrial, labor relations, equal pay, age discrimination, and labor relations law.

Undergraduate Program

Requirements for the Bachelor of Science Administration degree with a major in industrial relations and human resources are as follows:

IL/150 Protective Labor Legislation 3.0
IL/153 Collective Bargaining 3.0
IL/158 Personnel Management 3.0
Specialized area (industrial relations and human resources management) 6.0
Total 15.0

Students select courses in the specialized area based on their personal interests, with the advice and consent of their advisers.
Management Sciences

Chair: Gary C. Feltska

Professors: Celia T. Bell, William J. Berry (Stanley Professor), Andrew F. Daugherty, Gary C. Evans, and the Associate Chairs in Economics, Gerald L. Rose

Associate professors: Eleanor M. Beach, Warren J. Bue, Edward J. Cowan, Johanne Lohde, Gary A. Dyer, and Robin Mushinski


Management sciences majors participate in a variety of educational experiences that develop their knowledge of managerial decision-making skills. Self in Appying this knowledge are acquired by developing quantitative models, utilizing computer technologies, creating data base systems, and examining the behavioral attributes of organizations. Each degree track lists one of several career options open to departmental majors.

Management science majors prepares for a variety of careers in governmental and professional organizations. Typical starting positions include computer programmer, systems analyst, sales representative with computer companies, and management trainees. Entry-level positions in Operations Management include materials management, line supervisors, purchasing, and manufacturing systems.

Three tracks of study are available: the management sciences major: administrative studies, management information systems, and operations management. Course requirements are listed below for each track.

Administrative Studies Track

6E161 Individual Behavior in Organizations (3 credits)
6E162 Group Behavior in Organizations (3 credits)
6E163 Design and Management of Organizations (3 credits)
6E164 Managerial Decision Models (3 credits)
6E189 Management Information Processing and Decision Behavior (3 credits)

One of the following courses:
6E190 Microeconomics (3 credits)
6E193 Selected Problems in Administrative Science (3 credits)
6E173 Managerial Economics (3 credits)
6E178 Management Science Topics (3 credits)
6E184 Production Planning and Control (3 credits)

Management Information Systems Track

6E161 Individual Behavior in Organizations (3 credits)
6E165 Design and Management of Organizations (3 credits)
6E166 Managerial Decision Models (3 credits)
6E169 Management Information Systems (3 credits)
6E181 Systems Design for Operations Management (3 credits)

One computer science programming course (300:16-17 recommended). One of the following four courses:
6E173 Managerial Economics (3 credits)
6E176 Management Science Topics (3 credits)
6E183 Managerial Information Processing and Decision Behavior (3 credits)
6E184 Production Planning and Control (3 credits)

Operations Management Track

6E161 Individual Behavior in Organizations (3 credits)
6E184 Production Management (may be taken in place of 6L100)
6E161 Individual Behavior in Organizations (3 credits)

6E160 Design and Management of Organizations (3 credits)
6E176 Managerial Decision Models (3 credits)
6E180 Management Information Systems (3 credits)
6E181 Systems Design for Operations Management (3 credits)
6E184 Production Planning and Control (3 credits)

Graduate Programs

Master of Arts

The Master of Arts program in management sciences is designed for the student who seeks either an opportunity for specialization or a research experience. The general requirements are stipulated in the description of the Master of Arts in business administration. See "Interdepartmental Graduate Programs" at the front of this section of the Catalog. Students must consult with a faculty advisor to prepare a plan of study for the master's degree.

Doctor of Philosophy

Candidates who want to earn a Ph.D. degree in management sciences should refer to the description of the Doctor of Philosophy program in "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Primarily for Undergraduates

6E191 Cooperative Education Internship (0 credits)
6E195 Computer Application (3 credits)

6E196 Introduction to the computer and its uses in operation and management of organizations, topics encompass computer science, technology, introduction to programming management information systems, and use of computer software. Prerequisites: 6E191 and 6E196.

6E175 Statistical Analysis (0 credits)

The use of statistics for solving management problems: topics include regression, ANOVA, decision theory, and forecasting. Prerequisite: 6E175.

6E196 Management Information Systems (3 credits)

Organizations and management manufacturing computer systems, product design, plant layout and materials handling work simplification, and management; production management systems; the use of computer software and hardware. Prerequisites: 6E175 and 6E196.

For Undergraduates and Graduates

6E191 Directed Dialogue (0 credits)

Individual guided reading, a selected topic in management sciences. Prerequisite: consent of instructor.

6E196 Computer Application (3 credits)

A survey of major concepts and applications is designed to provide management personnel with an understanding of the computer's role in today's business environment. Development and custom design services of computer and management science personnel are also described. Prerequisites: 6E175 and 6E196.

6E191 Individual Behavior in Organizations (3 credits)

A survey of major concepts and applications in the field of organizational behavior is designed to provide management personnel with an understanding of the computer's role in today's business environment. Development and custom design services of computer and management science personnel are also described. Prerequisites: 6E175 and 6E196.
OM 341: Psychological Testing for Marketing

Applications 3 c.h.

Studies a number of psychological scaling techniques that have applications in consumer research and marketing decision making. Topics include factor analysis, multidimensional scaling, discrete choice models, and conjoint analysis. Prerequisites: OM 201, and statistical knowledge of regression, correlation, and analysis of variance. Instructor: M. K. Krashin.

OM 342: Seminar in Marketing

Examinations of current marketing literature and current issues. Course work involves the reading of current journal articles and culminates in a research paper on a topic of interest to the student. Prerequisites: instructor consent.

OM 370: Research in Marketing

Individuals guide research projects on appropriate topics in marketing. Prerequisite: consent of instructor.

OM 390: Thesis in Marketing

Prerequisite: consent of instructor.

OM 395: Final Studies in Marketing

1 c.h.

Substantial knowledge regarding various aspects of marketing utilized in real problems in ongoing business firms. Evaluation of thesis by students' counselor and faculty members under faculty supervision. Prerequisite: consent of instructor.
Dental Hygiene ........................................... 261
Endodontics .................................................. 263
Family Dentistry ........................................... 264
Fixed Prosthodontics ................................. 264
Operative Dentistry ...................................... 265
Oral Pathology and Diagnosis ....................... 266
Oral and Maxillofacial Surgery ....................... 267
Orthodontics .............................................. 267
Pediatric Dentistry ....................................... 269
Periodontics .............................................. 270
Preventive and Community Dentistry ............... 271
Removable Prosthodontics ............................ 272
The College of Dentistry is both administratively and physically an integral part of the University. It draws on and contributes to the University's diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the colleges of Medicine, Nursing, and Pharmacy in The University of Iowa Health Center, whose teaching, research, and service activities have earned international recognition.

Doctor of Dental Surgery

The basic educational program leading to the Doctor of Dental Surgery (D.D.S.) degree consists of approximately three years of preprofessional study and four years of study in the College of Dentistry. The dental curriculum consists of five basic units:

Basic Sciences
- Gross anatomy, histology, physiology, general pathology, oral pathology, pharmacology, microbiology.

Restorative Dental Sciences
- Gross, microscopic, and radiographic dentistry; fixed and partial prosthodontics; operative dentistry; oral surgery.

Oral Medicine
- Preventive dentistry, oral diagnosis; oral radiology; oral pathology; anesthesiology and pain control; oral surgery; periodontics; and other supporting sciences. These sciences are related to the delivery of comprehensive dental care.

Community Dentistry
- Ethics, nutrition, medical sciences, preventive dentistry, community health, behavior sciences, dental economics, dental jurisprudence, geriatrics.

Pediatric Dentistry
- Growth and development; pediatric dentistry and orthodontics.

To achieve a close correlation between the basic sciences and clinical training, the College has adapted the clinical patient treatment situations during the first year. The second-year program includes further activity in the basic and clinical sciences.

Third-year dental students rotate through a series of "clinics," which expose them to each of eight clinical disciplines. Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment that simulates conditions in private dental practice. Fourth-year students also are exposed to various extramural health programs that include hospitals, mental health institutions, the Geriatric Mobile Unit, and the Special Patient Care Clinics. Fourth-year dental students also participate in preceptorships, in which they assist in selected Iowa dental offices, gaining exposure to facets of dentistry usually not observable in academic settings, such as practical business management procedures and the relationship of the dentist to the community.

Promotions and Graduation

Student promotions and graduation are determined by the college's academic and professional performance committee, which is made up of selected faculty members appointed by the dean from the basic dental and preclinical 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 determined generally unprepared to be promoted or to enter the dental profession.

Committee for Appeals

When a student has been asked to withdraw from the college or to desire special consideration on problems concerning promotion or graduation, he or she may appeal to the dean. All appeals are heard by an ad hoc committee appointed by the dean. The ad hoc committee investigates information that has been considered by the dean, for reasons that, for some reason, have not been discussed as fully as the student feels should have been. The committee determines whether further investigation is warranted or recommend that the student's request be granted. The recommendation of the appeals committee is submitted to the dean for final action.

State Board of Dentistry Licensure Examination

The states of Kansas, Colorado, Missouri, Iowa, Wisconsin, Nebraska, Minnesota, Wisconsin, North Dakota, and South Dakota belong to the Central Regional Dental Testing Service, which serves as the testing agency for clinical examinations for licensure in these states. Examinations are administered at several testing sites located at schools of dentistry within the region. Examination dates are determined by the Central Regional Dental Testing Service and are available from its administrative secretary. For a five-year period, number states accept successful completion of Central Regional Dental Testing Service requirements as four of their individual state's examination requirements.

Facilities

The Dental Science Building, a major unit in the Iowa health center, enables the college to accelerate its 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 College of Medicine Building: University of Iowa Hospitals and Clinics; and the Health Sciences Library, the Health Sciences Library houses all of the University's special health science holdings, a total of 106,750 volumes, including the College of Dentistry's collection of more than 18,000 volumes on dentistry and allied scientific subjects, and the more than 2,600 dental journals the college currently receives. This library receives more than 2,900 journals from the related health professions.

The Dental Science Building consists of two connected four-story wings located on either side of a mall. The south wing is devoted to clinic teaching, with various departmental clinic facilities, support laboratories, research laboratories, administration area, audiovisual production center, and programs in community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local organization, the Iowa Student Dental Association. Also, there are local chapters of the American Association of Dental Research, the American Association of Women Dentists, and the American Society of Dentistry for Children. Students who rank in the upper 5 percent of the senior class are eligible for election to Omicron Kappa, the national scholastic honorary dental society. Two national dental professional fraternities, Delta Sigma Delta and Phi Omega, have chapter houses in Iowa, and both have spouses organizations.

Expenses

The College of Dentistry maintains a supply-instrument Management System (S.I.M.S.) that provides the student with all necessary items necessary throughout dental training. The instrument usage fee for the program leading to the D.D.S. degree is payable in
Financial Aid

Financial assistance for dental students is based on need. Eligibility is determined by completion of the Free Application for Federal Student Aid (FAFSA). Needed financial aid is received first by students with the highest financial need. Inquiries about financial aid should be directed to the Office of Student Financial Aid for updated information regarding financial assistance available to dental students.

Admission

Each applicant 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. Applications are accepted beginning June 1 of the year prior to the year for which application is made. Completed applications must be on file at AADSAS by September 30. Applicants should apply as early as possible and should not delay until after the Dental Admissions Test (DAT) is taken. Notifications of acceptance will be sent by December 1. The prospective dental student is encouraged to embark on an education program that will lead to a standard bachelor's degree. This will allow the applicant to consider a combined program that enables him or her to earn a standard bachelor's degree upon completion of the freshman year in dentistry (see Combined Liberal Arts-Dentistry Course in this section of the Catalog).

Predental Studies

The basic academic requirement for admission to the College of Dentistry is the completion of no less than 34 semester hours of academic study at an accredited college. In exceptional circumstances, candidates with fewer than 94 semester hours of college work will be considered for admission if the applicant's performance and potential for the dental profession are consistent outstanding. The predental program of study should include:

- English
- Satisfactory accomplishment in English composition, rhetoric, and speech
- Mathematics with the academic requirements for a bachelor's degree at the college attended.
- Physics
  - One year (equivalent to 16 semester hours), of which one-fourth must be laboratory work.
- Chemistry
  - Two years (equivalent to 16 semester hours), of which one year (equivalent to 8 semester hours) must be in organic chemistry, and of which one-fourth must be laboratory work.
- Biology
  - One year (equivalent to 8 semester hours), which must include appropriate laboratory work; requirement may be satisfied by a one-year course in either general biology or anatomy and botany (20 credits).

Liberal Arts-Dentistry Course

Students who are enrolled in a baccalaureate program at The University of Iowa may be allowed to include the first year of dentistry to comprise their elective hours requirements toward the bachelor's degree. The provision for acceptance by the College of Liberal Arts or 30 semester hours of elective credit earned in any other college of the University allows students who enter the College of Dentistry to obtain a bachelor's degree from the College of Liberal Arts after successfully completing the freshman year in dentistry. To take advantage of this plan, students must fulfill all specific requirements for the bachelor's degree, including the requirements for a major in a department or area of concentration. Students can satisfy the College of Liberal Arts residence requirement by successfully completing the last 30 semester hours in the College of Liberal Arts on campus at The University of Iowa before enrolling in the College of Dentistry.

Grade-Point Requirement

The applicant should have a cumulative grade-point average of at least 2.5. The admissions committee gives special consideration to the quality of the applicant's course work in the predental sciences in addition to his or her cumulative grade-point average.

Interviews

Personal interviews are required of applicants for admission to the College of Dentistry. Applicants will be notified when to appear for interviews, usually after the AADSAS application is received by the Admissions Office. If the applicant is unavailable during the fall semester (travel, foreign study), arrangements should be made for an interview during the preceding summer.

Required Dental Admission Test

All applicants must complete the Dental Admission Test (DAT) sponsored by the Council on Dental Education of the American Dental Association. Tests are given in April and October. The University of Iowa is a testing center. Applicants must take the test no later than October in order to be admitted for the following year. Applicants may obtain test application forms from the University Office of Admissions or the American Dental Association, 211 East Chicago Avenue, Chicago, Ill. 60611. Test applications should be submitted at least 30 days before the test.

Deposit by Accepted Applicants

Applicants accepted before April 15 are required to submit a $5000 deposit within 30 days after notification of admission. Applicants admitted after April 15 must submit the deposit within two weeks after notification of admission. This deposit is not refundable, but is credited toward the first term's tuition. Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

Additional Admission Considerations

Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study and practice of dentistry. The committee considers applicants' academic averages, science test scores, Dental Admission Test scores, letters of recommendation, the interview, and other factors.
Special Programs

Early Admissions

The College of Dentistry has an early admission program open to all. The University of Iowa, Augustana College, St. Mary's College, and Valley View B & M University in Prairie View, Tex. The Dental Early Admission Program (DEAP) allows academically-qualified students interested in a dental career to be admitted as early as the first year of their undergraduate college education while postponing matriculation to the College of Dentistry until they have completed three years of liberal arts education. During these three years, the students are engaged in a liberal arts curriculum that incorporates the dental prerequisite courses. Once selected for the program, the student must maintain a 3.0 grade-point average to assure matriculation to The University of Iowa College of Dentistry.

Scholarship

The College of Dentistry has a limited number of Merit Scholarships available to first-year dental students. Selection is based on undergraduate grade-point average, DAT scores, and the interview. This scholarship is renewable for two additional years if a 3.25 cumulative grade-point average is maintained.

Contract

Under an agreement with The University of Iowa College of Dentistry, the State of Arkansas makes supplemental tuition payments to its students. The dentistry students at Iowa. These payments enable the Arkansas students to pay the equivalent of Iowa resident tuition for their study here.

Graduate and Postgraduate Study

Programs of study leading to the Master of Science degree are offered by the College of Dental Hygiene, Fixed Prosthodontics, Operative Dentistry, Endodontics, Oral Pathology and Diagnosis, Oral and Maxillofacial Surgery, Orthodontics, Pediatric Dentistry, Periodontics, Preventive and Community Dentistry, and Removable Prosthodontics. Admission to any of the graduate programs requires satisfaction of all requirements for admission to the Graduate College, possession of a Doctor of Dental Surgery degree or its equivalent (except for Dental Hygiene), and department 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 satisfactory completion of the postgraduate program.

Basic Sciences in the Dental Curriculum

The following science courses are offered by departments in colleges other than dentistry, and are a required part of the dental curriculum.

60:101 Human Gross Anatomy for Dental Students 6 s.h.
60:112 General Histology for Dental Students 4 s.h.
60:114 Oral Histology and Embryology 1 s.h.
60:112 Health Sciences Microbiology 4 s.h.
69:203 Introduction to Human Pathology 4 s.h.
71:111 Pharmacology for Health Sciences: Dental 5 s.h.
72:152 Mammalian Physiology 4 s.h.
90:301 Biochemistry for Dental Students 4 s.h.

Courses

Nondepartmental

110:105 Transfer Credits Accepted
110:129 First-Year Controversy Sessions 3 s.h.
110:141 Introduction to Dentistry (Dental Surgery) 4 s.h., includes 3 week's work in a single clinic to observe various aspects of dental care and to make some start toward clinical diagnosis. Students will also be introduced to the laboratory study of indirect and direct extraction, as well as normal aging and orthodontic changes in the elderly patient that affect treatment and patient management.
110:150 Second-Year Controversy Sessions 3 s.h.
110:180 Biomaterials Materiales Selection in the dental office for restorative and diagnostic devices.
110:185 Dental Therapeutics Review of materials taken by patients that may have implications for dental treatment, review of modifications that cannot successfully be made.
110:204 Third-Year Controversy Sessions 4 s.h.
110:210 Practice Ahead Oral hygiene and patient care units co-operate with the faculty of dental colleges.
110:240 Fourth-Year Clinics 2 s.h.
110:250 Advanced Clinical Cooperation—Dentistry 3 s.h.
114:250 Advanced Clinical Cooperation—Endodontics 3 s.h.
114:250 Advanced Clinical Cooperation—Orthodontics 3 s.h.
114:250 Advanced Clinical Cooperation—Pediatric Dentistry 3 s.h.
114:250 Advanced Clinical Cooperation—Prosthodontics 3 s.h.
114:250 Advanced Clinical Cooperation—Surgery 3 s.h.
114:250 Advanced Clinical Cooperation—Periodontics 3 s.h.
116:250 Advanced Clinical Cooperation—General Practice 3 s.h.
118:250 Advanced Clinical Cooperation—Hospital Practice 3 s.h.

Clinical Management Concepts

Professor: Thomas V. Gardner
Associate professor: Joel L. Logan
Assistant professor: Gerald Scott

118:06 Group Advocate Seminar 2 s.h.
118:07 Clinical Management Seminar 1 s.h.
118:10 Clinical Management Seminar 2 s.h.
118:15 Clinical Management Seminar 1 s.h.
118:20 Clinical Management Seminar 1 s.h.
118:25 Clinical Management Seminar 1 s.h.
118:30 Clinical Management Seminar 1 s.h.
118:35 Clinical Management Seminar 1 s.h.
118:40 Clinical Management Seminar 1 s.h.
118:45 Clinical Management Seminar 1 s.h.
118:50 Clinical Management Seminar 1 s.h.

Dental Hygiene

Chair: Pauline Rein
Professor: Janet Avery
Associate professors: Pauline Rein, Nancy N. Lefko, Elizabeth Fiett, Kay Mosher, Faye Thompson
Assistant professor: James Edlund
Adjunct assistant professor: James Sharp
Dentist advisor: R.S., M.S.

Undergraduate Program

Qualified by education and license, the dental hygienist applies knowledge of the basic, social, dental, and clinical disciplines in providing services for the prevention and control of oral disease.

The Bachelor of Science degree program in dental hygiene comprises 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, regional, and state dental hygiene licensure examinations required for dental hygiene practice.

Included in the General Education Requirements are courses in the basic and social sciences. These courses provide the student with educational preparation in disciplines relevant to specialized study in medical and dental sciences and in dental hygiene.

Students take the specialized courses during the junior and senior years. In the junior year, students enroll in 69:2 Human Histology, 71:130 Intermediate Pharmacology, 82:61 Introduction to Periodontology; 82:61 Operative Dentistry Laboratory for Hygienists, 86:40 Introduction to Oral Pathology; 86:61 Oral Dental Hygiene for Hygienists, 86:62
DENTISTRY/Dental Hygiene

Dental Radiology for Dental Hygienists; 87.63 Anesthesia: Anatomy; 86.51 Dental Anatomy; and 88.52 Head and Neck Anatomy.

In addition, juniors learn the basic theory and clinical skills required for dental hygiene practice in General Education Requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

Four semester hours (9 for transfer students) of anatomy and physiology—'

Three semester hours of inorganic chemistry—'

Three semester hours of organic chemistry, including biochemistry—'

Four semester hours of microbiology—'

Three semester hours of nutrition—'

Three semester hours of psychology—'

Three semester hours of sociology—'

Four semester hours of anatomy—'

Four semester hours of physiology—'

These prerequisites provide the educational basis for the dental hygiene course of study. In addition, senior students enrolled in the professional program must complete basic certification in cardiopulmonary resuscitation (CPR) prior to entrance.

Students must complete both College of Liberal Arts and dental hygiene applications in the fall semester of their freshman year. Transfer a student must submit both College of Liberal Arts and dental hygiene applications.

Graduate Program

The graduate program fulfills the need for qualified educators in dental hygiene as well as the need for preparing students to contribute to the advancement of new knowledge in dental hygiene. Program graduates are prepared for positions as dental hygiene educators and administrators, research assistants, dental health care practitioners, program administrators, consumer advocates, and preventive product consultants. Therefore, graduate program goals place emphasis on the acquisition of advanced scientific knowledge in the biological, social, and physical sciences, and basic knowledge of and experience in conducting research. The curriculum design provides the student with a broad core that prepares him or her for dental hygiene theory in the biological field, this consists of the pathophysiology of dental plaque, including plaque microbiology and biofilm formation, the relationship of plaque to caries and periodontal disease, the response of the host to dental plaque, emphasizing immunological mechanisms; and the prevention of dental diseases by immunization and antimicrobial agents. In the social science area, students consider the implications of applied sociological, psychological, economic, cognitive, and environmental concepts related to oral health. Selected readings relate societal values and structural elements of dental care delivery systems to oral health outcomes and explore the relationships of the individual, the family, and the community to oral health outcomes, both behavioral and physical. Study in the educational field includes dental hygiene teaching, with emphasis on dental hygiene education, elements of curriculum design, and the theory and application of didactic and clinical teaching in dental hygiene.

Although students may begin the 34 semester-hour program during the summer session, the two-year program is restricted in the beginning of the fall semester is preferred. Applications, transcripts, and Graduate Record Examination (GRE) Aptitude Test scores of the student should be completed as soon as possible prior to the semester for which admission is desired. Most students should expect to take two academic years to complete degree requirements.

Approximately 14 semester hours are taken in assigned courses to acquire advanced knowledge in dental hygiene and 10 semester hours are taken in research methodology and thesis preparation and defense. The remaining 12 hours include electives in the biomedical and social sciences.

Elective course work related to the biomedical sciences may include microbiology, histology, biochemistry, oral pathology, and periodontology.

Electives emphasizing the social, economic, and political aspects of health include epidemiology, medical sociology, and health administration.

Students also are encouraged to consider taking electives in education, such as educational measurement, theories of learning, and administration.

Courses required in dental hygiene are 88.201 Seminar: Dental Hygiene Literature Review, 88.203 Research: Dental Hygiene, 88.204 Selected Topics in Dental Hygiene Education, 88.205 Social Factors and Oral Health, and 88.206 Thesis: Dental Hygiene.

Admission

High School Preparation

Although there are no specific high school course requirements, college preparatory courses are recommended. These courses include four years of English, at least two years of the same foreign language (preferably Spanish), two years of high school algebra, and one year of high school science, and one each of biology and chemistry.

College Preparation

Eligibility for admission to the professional program in dental hygiene requires satisfactory completion of 60 semester hours of college course work. In fulfilling this requirement, the student must satisfy General Education Requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:
Courses

For Undergraduates

B65 Dental Anatomy 3 a.h.
Includes dental terminology, the morphological characteristics of teeth, their positional relationships and functional considerations; emphasis on the relationship of dental anatomy to clinical dental practice.

B67 Oral and Maxillofacial Surgery 3 a.h.
Introduction to oral and maxillofacial surgery, oral and maxillofacial pathology and the treatment of disorders of the oral, maxillofacial and cranial structures.

B69 Oral and Maxillofacial Surgery 5 a.h.
Principles and techniques of surgical procedures in the oral cavity, including maxillary sinus surgery, oral and maxillofacial trauma, and craniofacial anomalies.

B70 Special Problems in Oral Surgery 3 a.h.
Advanced surgical techniques and management of complex oral and maxillofacial surgical cases.

Predoctoral Program
Course work and clinical experiences in endodontics are of vital importance in the overall education of a dental student.

Preclinical endodontics, taught during the sophomore year, includes both didactic and laboratory courses. In clinical endodontics, the student studies both normal and pathological conditions of the dental pulps and periapical tissues, emphasizing the areas of prevention and diagnosis of pulpal and periapical disease. Students treat endodontic patients under direct supervision of faculty and staff.

Graduate Program
The graduate program offered by the Department of Endodontics is designed to prepare qualified dentists for the practice of endodontics and/or a career in dental education and research.

The department offers two types of graduate (post-D.O.I.) programs.

The Master of Science degree program requires a minimum of 40 graduate semester hours, including an original research project and thesis. The student follows a plan of study that may involve a total of 60 semester hours.

The certificate program requires no formal thesis. The candidate is expected to follow a study program and complete a written report on a specific topic in endodontics that is supervised by a faculty member.

Both programs are for a minimum of two calendar years, and only full-time students are employed. The program requires satisfactory performance in a comprehensive written and/or oral examination, the character of which is a function of the student's performance and character.

University of Iowa Dental hygiene majors receive professional preparation in the University's modern Dental Science Building. This building is part of the University of Iowa Health Care complex, one of the nation's outstanding health science teaching, research, and patient care facilities.

Financial Aid
In addition to financial assistance available to University students in general, there is a limited number of positions specifically for dental hygiene students. These loans are based on assessment of the student's academic record as well as financial need.

Endodontics

Endodontics
Head: Richard E. Walton
Professor: Richard E. Walton
Professor-in-Charge: Bruce M. Bouldin
Associate professor: Keith V. Kelly
Assistant professor: Sandra Madison
Degree offered: M.S.
However, it is also possible to start a program at the beginning of either the apraxia semester or summer session. Applications should be made no later than two semester periods in advance of anticipated starting date. Students who have met the requirements for admission to the Graduate College also may be accepted into the program by the faculty of the Department of Endodontics. A personal interview with the applicant may be requested.

Each student in the program must maintain a grade-point average of 3.0 to receive a certificate or degree. A student who fails below this level will be allowed one semester to attain it. The circumstances creating the deficiency will receive careful consideration.

Students enrolled in the graduate programs in endodontics may not receive allowances in private practice enterprises outside the college. A student who does so will be asked to obligate himself or herself exclusively either to the program or the practice.

Persons applying to the graduate program in endodontics must be able to support themselves financially for the time required to complete the program.

Courses
Predoctoral
- 051 Advanced Clinical Endodontics (AM) 2.0h
- 053 Advanced Clinical Endodontics I (AM) 1.0h
- 055 Advanced Clinical Endodontics II (AM) 1.0h
- 057 Advanced Clinical Endodontics III (AM) 1.0h
- 059 Advanced Clinical Endodontics IV (AM) 1.0h

Family Dentistry
Head: Daniel L. Hall
Associate professors: Larry J. Drabik, Howard W. Dedrick, John F. Dentling, Warren D. Williams Assistant professors: Bruce V. Harvey, Allen Kokotailo, women A. Dunlap

The Department of Family Dentistry is responsible for the senior dental student's final synthesis of academic experiences. The major goal is the integration of previously learned clinical skills into a well-organized and systematic approach to the comprehensive and professional treatment of patients. The experience encompasses approximately three-fourths of the senior year.

Students spend five days a week in a clinical setting, where they gain experience in total patient management and care. Their didactic course work builds on the previous year's education. All areas of clinical and didactic instruction, patient and doctor motivation, and communication skills are stressed.

The department's two practice management courses—case lecture, the other clinical—prepare the student to make practice location selections as well as manage the business aspects of a dental office.

Courses
1.0h Introduction to Hypnosis in Clinical Practice
2.0h A prospective study of patients who have undergone hypnosis for dental procedures
3.0h Advanced Clinical Endodontics
4.0h Advanced Clinical Endodontics I
5.0h Advanced Clinical Endodontics II
6.0h Advanced Clinical Endodontics III
7.0h Advanced Clinical Endodontics IV

Fixed Prosthodontics
Head: Kenneth A. Turner

The department participates in the DDS program for dental students at all levels. Precorsscience courses at the first and second level prepare the student with a background in materials and techniques used in fixed prosthodontic treatment. This prepares the student adequately for the concentrated clinic program of patient treatment in the specialty area.
Graduate Programs

The department offers Master of Science and certificate programs. The primary purpose of the M.S. program is to train professionals in oral and maxillofacial prosthodontics. The program is designed for individuals seeking to further prepare themselves for private practice. Both programs satisfy the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Master of Science

The program gives major emphasis to fixed prosthodontics. The program, including clinical work in general area of basic science is required for the master's degree.

Each student is required to submit a manuscript suitable for publication in a nationally recognized professional journal. Based on the student’s research and thesis, the student may require for the master's degree.

Certificate Program

The department offers a certificate program that provides more clinical experience than the M.S. program and does not require a thesis. The certificate also satisfies the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Admission

The minimum requirements for admission into the programs are at the discretion of the graduate committee for the minimum requirements for admission into the Graduate College. In addition, the student must hold a D.D.S. or D.M.D. degree or its equivalent.

Courses

Predoctoral

8130 Prosthodontics Laboratory

8131 Dental Materials

8132 Orthodontics I

Operative Dentistry

Head: Walter W. Johnson
Professor: Kit Cho, Todd, Gerald Dentley, James Tallon, Walter W. Johnson
Associate professor: Dan Boyer, Yvonne Chadwick, Linda Oblis, John Richard
Assistant professor: Thomas Schiavi

Degree offered: M.S.

Predoctoral Program

Course work and clinical experiences in operative dentistry are fundamental to the overall education of a dentist. The operative dentistry curriculum is designed so that the diagnostic material presented relates closely to the laboratory and clinical experiences. The program will provide students with the knowledge and experience necessary to proceed independently in operative dentistry during the fourth year of training.

Graduate Program

The Department of Operative Dentistry offers a program of advanced training designed to prepare dentists for teaching, research, and practice. Since operative dentistry is not a specialty area of dentistry, there is ample opportunity in the graduate program for the student to pursue courses that are of particular interest to the individual. Students may take the program for either a Master of Science degree or a certificate in clinical operative dentistry.

Requirements for the M.S. degree include satisfactory completion of 48 semester hours of specific graduate-level courses, preparation of an acceptable thesis based on original research, and formal defense of thesis by an examining committee.

Students should plan to familiarize themselves with the financial aid available from the University of Minnesota and the American Dental Association.

Applicants for this program must be graduates of recognized schools of dentistry and must comply with the admission requirements of the Graduate College. An interview with the applicant may be requested.

Courses

Dental Hygiene

8215 Operative Dentistry Laboratory for Hygienists

8216 Operative Dentistry Laboratory for Students

Preclinical

8225 Operative Dentistry Laboratory

8226 Operative Dentistry Laboratory

Operative Dentistry

Head: Walter W. Johnson
Professor: Kit Cho, Todd, Gerald Dentley, James Tallon, Walter W. Johnson
Assistant professor: Dan Boyer, Yvonne Chadwick, Linda Oblis, John Richard
Assistant professor: Thomas Schiavi

Degree offered: M.S.

Predoctoral Program

Course work and clinical experiences in operative dentistry are fundamental to the overall education of a dentist. The operative dentistry curriculum is designed so that the diagnostic material presented relates closely to the laboratory and clinical experiences. The program will provide students with the knowledge and experience necessary to proceed independently in operative dentistry during the fourth year of training.

Graduate Program

The Department of Operative Dentistry offers a program of advanced training designed to prepare dentists for teaching, research, and practice. Since operative dentistry is not a specialty area of dentistry, there is ample opportunity in the graduate program for the student to pursue courses that are of particular interest to the individual. Students may take the program for either a Master of Science degree or a certificate in clinical operative dentistry.

Requirements for the M.S. degree include satisfactory completion of 48 semester hours of specific graduate-level courses, preparation of an acceptable thesis based on original research, and formal defense of thesis by an examining committee.

Students should plan to familiarize themselves with the financial aid available from the University of Minnesota and the American Dental Association.

Applicants for this program must be graduates of recognized schools of dentistry and must comply with the admission requirements of the Graduate College. An interview with the applicant may be requested.
Oral Pathology and Diagnosis

Head: Gilbert E. Lilly
Assistant professors: Annette Ault, John E. Atchison
Assistant professors: William J. Hauser, Philip F. Hawes, Clayton L. Halls
Assistent professors: Michael W. Pekmezian, JoAnn R. Sipp, Steven D. Varela
Associate professors: George C. Kaslin, Thomas F. Williams
Adjunct assistant professors: Eva C. Davis, Arthur H. Narr
Degree offered: M.S.

Predoctoral Program

The department's primary objective is to provide instruction to dental students and other health-profession specialties in the etiology, natural history, and diagnoses of diseases manifest in and about the oral cavity. Instructors includes the clinical, laboratory, radiographic, and microscopic features of dental and their influence on dental therapy, and the influence of diagnostic and clinical approach on systemic diseases.

Graduate Programs

Master of Science

Advanced instruction is available for graduate-level students in health sciences and related fields who are preparing for specialty practices or careers in teaching and research in the areas of oral pathology, oral biology, oral medicine, and dental radiology.

Course for Master of Science degree are expected to develop substantive ability for research into mechanisms of oral disease, and should anticipate the considerable effort devoted to completing an assigned research project and the thesis based on it.

Minimum requirements for completion of this program are 40 semester hours of graduate credit and a thesis. The required courses are:

111:212 Statistical Methods in the Biomedical Sciences 3.0
69:210 General Pathology for Medical Students 3.0
69:212 Systemic Pathology for Medical Students 9.0
66:230 Research in Oral Pathology and Diagnosis 2.0
60:260 Oral Microbiology 3.0
69:256 Advanced Oral Pathology 3.0
12:215 Dental Science Research Methodology 2.0
80:160 Topics in Oral Pathology 1.0

所需的课程有:

111:212 统计方法在生物医学科学
69:210 医学一般病理学
69:212 系统病理学
66:230 口腔病理学研究
69:256 高级口腔病理学
12:215 牙科科学研究方法
80:160 口腔病理学专题

Facilities

The laboratories and clinical offices of the department are equipped to provide training in diagnostic radiology, histopathology, immunopathology, laboratory diagnosis, clinical pharmacology, and experimental pathology. Laboratory facilities are available for investigation and correlated cases.

Admission

Applicants must have completed an accredited program leading to the D.D.S. or D.M.D. degree, and have completed, with a minimum cumulative grade-point average...
of 2.7, and must present satisfactory scores in the Graduate Record Examination (GRE) Aptitude Test. Acceptance of any applicant meeting the requirements for admission will rest with the departmental staff. Prospective applicants are encouraged to discuss program requirements with the department head prior to application.

Courses

Dental Hygiene

06:60 Introduction to Oral Pathology 1 s.h.
   Essentials of the basic dental and medical disorders and their clinical presentations, interpretation and current control of oral and medical diseases. Required for dental hygiene.

06:61 Oral Pathology for Dental Hygienists 1 s.h.
   Study of oral disease provides basic information required to differentiate normal from abnormal and disease from trauma. Provides general understanding of pathologic processes involved in oral tissues. Required for dental hygiene.

06:62 Dental Radiology for Dental Hygienists 1 s.h.
   Clinical techniques, radiology hygiene, processing and recording time, first level.

06:63 Clinical Dental Radiology for Dental Hygienists 2 s.h.
   Supervised clinical experiences in taking dental radiographs, processing and recording time, second level.

Predoctoral

06:59 Introduction to Diagnosis and Radiology 3 s.h.
   Comprehensive methods of clinical and radiographic examination and record keeping; correlation of basic and clinical sciences.

06:60 Oral Pathology 3 s.h.
   Lehrman, Jones, and others. Located in Buisance, teaching oral pathology, second level.

06:61 Prognostic Diagnosis and Radiology 3 s.h.
   Hazzard, Freiman, and others. Located in Buisance, teaching oral pathology, and clinical pathology, second level.

06:62 Systemic Disease Manifestations 3 s.h.
   Review and presentation of clinical problems to dentists designed to help the student with the basic information required to evaluate patients.

06:63 Clinical Oral Pathology and Radiology 3 s.h.
   Based on a practice of diagnostic clinical research in clinical, histopathologic, and radiographic methods, materials, equipment, and therapeutic modality. Materials: Hazzard, Freiman, and others.

06:64 Clinical Dental Radiology 2 s.h.
   Supervised experiences in taking and processing clinical and orthopantomographic, principles of radiographic diagnosis.

06:65 Topics in Oral Pathology 2 s.h.
   Lecture and demonstrations in concentrated areas of special problems. Credit is given specifically for advanced studies in professional and graduate curricula.

Graduate

06:29 Oral Pathology and Diagnosis Literature Review
   Assignment, reading and preparation of dissertation. Prerequisites: consent of instructor.

06:235 Oral Pathology and Personal Elements
   Physical examination of the head and neck, including head and neck and personal elements. Analysis of personal elements for management experience in oral health, clinical photography, imaging, laboratory techniques, and oral pathology. Treatment of oral and maxillofacial cancer, treatment of oral and maxillofacial pathology.

06:299 Oral, Laboratory, and Microscopic Features of Disease
   Taber, Fish and others. Includes case analysis, interpretation of clinical slides, and microscopic slides. Prerequisites: consent of instructor.

06:37 Surgical Oral Pathology
   Practice experience in the preparation of a surgical oral pathologist. May be repeated. Prerequisites: completion of 36:235 and consent of instructor.

06:38 Research in Oral Pathology and Diagnosis
   Required of M.S. candidates but may be open to other qualified students whose interest coincide with available areas of graduate research activity in the laboratory.

06:36 Histopathology
   Required as part of oral pathology laboratory. Includes systematic study of oral and maxillofacial diseases. May be repeated. Prerequisites: completion of 36:235 and consent of instructor.

06:41 Hospital Oral Pathology
   Participation course in diagnostic oral pathology. Includes physical diagnosis, clinical diagnosis, and histopathologic analysis of major disease entities. May be repeated. Prerequisites: completion of 36:235 and consent of instructor.

06:42 Dental Radiology Advanced Clinics
   Advanced clinical and didactic radiographic techniques, procedures and instrumentation. Prerequisites: consent of instructor.

06:43 Advanced Oral Pathology
   Diagnostic study of disease involving oral and maxillofacial tissues. Content can be adjusted to special interests of students. Prerequisites: completion of 36:235 and consent of instructor.

Oral and Maxillofacial Surgery

Acting head: John C. Montgomery

Directors of graduate studies: Kenneth G. Conley, A. Zachary, and Frank J. Zamer (Family Dentistry)

Director of predoctoral studies: Robert A. Johnson

Directors of graduate studies: Robert A. Johnson

Professors: Leslie H. Hay, James H. McLenon, Paul D. Moore, Jon A. Zuck


Degree offered: M.D.

The Department of Oral and Maxillofacial Surgery combines clinical and didactic training on an individual basis to the interests, abilities, and development of the student. Its predoctoral program is based in the College of Dentistry, with some clinical assignments in the Department of Oral and Maxillofacial Surgery at University of Iowa Hospitals and Clinics. Graduate study is conducted primarily in the Residency Training Program at University of Iowa Hospitals and Clinics.

Prodoctoral Program

The predoctoral curriculum is designed to develop a foundation of professional knowledge, coupled with known surgical skills, to enable the student to diagnose and manage surgical problems related to the practice of general dentistry. Emphasis is placed on reinforcing high ethical standards and developing good surgical concepts, clearly indicating the moral responsibility assured for the clinic's patients. The clinical portion of the curriculum allows the student to develop surgical skills and apply the theoretical knowledge gained in the didactic courses. The theory and application of anesthesia, intravenous sedation, and nitrous oxide analgesic techniques are presented through didactic and clinical experiences.

Graduate Programs

Residency Program

The aim of the residency program in oral and maxillofacial surgery is to provide preparation for specialty practice. The program is designed to combine clinical and didactic training on an individual basis. Every effort is made to adjust the program to the interests, abilities, and development of the individual student; however, it is essential to meet certain fundamental requirements.

The recommendations of the Council on Dental Education of the American Dental Association, the Committee on Graduate Training of the American Society of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been carefully considered in planning the structure and scope of training.

The residency period covers four years of hospital training, providing an orientation to basic scientific principles, integrated with advanced clinical and surgical techniques. Acquisition of the clinical skills needed for the practice of medicine is accompanied with the various aspects of health services.

Competence in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. Therefore, in addition to hospital and clinical training, the resident takes advanced course work in subjects such as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology, and reviews closely-related disciplines such as rheumatology, anesthesiology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the representing of clinical and educational trust experience are important aspects of training.

The resident gains clinical training in anesthesiology through an assigned rotation in the Department of Anesthesiology. Previous advanced training in physical diagnosis, pharmacology, and pathology assure greater clinical significance, and increased responsibility in the operating room as first assistant and surgeon further develops surgical judgment and skills.
The development and implementation of a research project under staff supervision enhances the value of the residency training.

The senior resident may be given responsibility for major oral and maxillofacial surgical cases during rotations in The University of Iowa Hospitals and Clinics and Veterans Administration Medical Center. Each third-year resident is assigned one faculty as a clinical and didactic coordinator, and assumes responsibility to qualify for examination by the American Board of Oral and Maxillofacial Surgery.

Master of Science
Requirements for the Master of Science degree may be completed during residency. The M.S. program comprises a four-year course of integrated didactic and clinical study, including a research project and the preparation of a thesis.

Admission
Students may begin the full four-year program only on July 1. The application deadline in oral and maxillofacial surgery is September 1 for admission on July 1 of the next year.

Applicants must meet the following requirements:
- The Graduate Record Examination (GRE)
- Aptitude Test is required.
- The applicant must be a graduate of an accredited college of dentistry and be licensed to practice dentistry in the United States.
- The applicant should be in the upper quarter of his or her college graduating class.
- Documents required include application for graduate oral and maxillofacial surgery; applicant’s official transcript; letters of recommendation from the dean of the dental college from which the applicant graduated, and from two professional references.
- Interviews are not required but are strongly recommended.
- Applicants may be appointed any time after the application has been completed and the staff elects to take official action. All appointments should be tendered on or before January 1 prior to the July 1 effective date.

The graduate admission office will send to the applicant an admission form to be completed for the Graduate College by approximately March 1.

Facilities
The University of Iowa Health Care has outstanding basic and clinical science departments that stimulate and support scholarly research and superior clinical practice. The facilities of The University of Iowa Hospitals and Clinics, the Veterans Administration Medical Center, and the colleges of Dentistry and Medicine provide an appropriate environment for residency training in oral and maxillofacial surgery.

Hospital Organizations

The organizational structure of University of Iowa Hospitals and Clinics includes a hospital dentistry clinic clinical service with divisions of oral and maxillofacial surgery, family dentistry, pediatric dentistry, orthodontics, periodontics, oral trauma, anesthesia, prosthodontics, endodontics, and diagnosis and oral radiology. The oral and maxillofacial surgery residency program and a one-year general practice residency are Conducted under the auspices of the Division of Oral and Maxillofacial Surgery and Division of Family Dentistry.

Courses

Dental Hygiene
87-42 Aesthetics and Analysis 1 s.h.
Principles and techniques of local anesthesia, practical application of local anesthesia techniques for dental hygiene students.

Predoctoral
87-114 Aesthetics and Palo Center II 1 s.h.
Principles and techniques of comprehensive medical history, physical and psychosocial examination, psychosocial and psychological aspects of dental and medical care, use of ergonomics and statics in the mouth.
87-125 Oral and Maxillofacial Surgery I 2 s.h.
Basic principles of oral and maxillofacial surgery; introduction to clinical oral and maxillofacial surgery. Focus on orthognathic surgery, sleep apnea surgery, implant surgery on periimplant defects, and identification and management of sinus and orbital pathology.
87-143 Aesthetics and Palo Center II 1 s.h.
Advanced oral and maxillofacial surgery techniques for the private practice oral and maxillofacial surgeon.
87-154 Aesthetics and Palo Center II 1 s.h.
Advanced oral and maxillofacial surgery techniques for the private practice oral and maxillofacial surgeon.
87-186 Clinical Oral and Maxillofacial Surgery 4 s.h.
Clinical experience in oral surgery clerkship at the College of Dentistry, University of Iowa Hospitals and Clinics, and Veterans Administration Medical Center.
87-188 Introduction to Hospital Procedures MT.
Orientation and exposure to the hospital environment for the Division of Family Dentistry at University of Iowa Hospitals and Clinics, treatment of dental emergencies, hospital setting.

Graduate
87-231 Hospital Procedures 1 s.h.
Hospital rules and regulations, patient and department reviews, general information relative to hospitalized patients.
87-232 Basic Science Review 2 s.h.
Biological and psychological aspects of oral and maxillofacial surgery. Special lectures by oral and maxillofacial faculty.
87-237 Surgical Anatomy 1 s.h.
Anatomy of the head and neck structures relevant to oral and maxillofacial surgery. Special lectures by oral and maxillofacial faculty.
87-239 Pulp and Connective Control 3 s.h.
Course of oral and maxillofacial surgery. Special lectures by oral and maxillofacial faculty. Special lectures by oral and maxillofacial faculty.
87-240 Library Review 2 s.h.
Review of literature on general anesthesia with study of articles and their effects on respiratory and cardiovascular systems.
87-241 Literature Seminars and Journal Club 1 s.h.
Focus on attention to material covered in assigned journals.
87-242 Surgical Case Reports 1 s.h.
87-244 Research Methods 2 s.h.
Review of theory and techniques related to library research.
87-245 Physical Diagnosis 1 s.h.
Review of principles of physical diagnosis.
87-246 Oral Pathology Conferences 1 s.h.
Review and discussion of current clinical applications.
87-247 Oral and Maxillofacial Surgery Seminar 1 s.h.
Teaching with individual mini lecture presentations topics selected by students and faculty.
87-248 Oral and Maxillofacial Surgery Seminar II 1 s.h.
Teaching with individual mini lecture presentations topics selected by students and faculty.
87-247 Oral and Maxillofacial Surgery Seminar III 1 s.h.
Teaching with individual mini lecture presentations topicsselected by students and faculty.
87-248 Oral and Maxillofacial Surgery Seminar IV 1 s.h.
Teaching with individual mini lecture presentations topics selected by students and faculty.
87-250 Oral and Maxillofacial Surgery Research 1 s.h.
Research in oral and maxillofacial surgery.
87-255 Oral and Maxillofacial Surgery Research II 1 s.h.
Research in oral and maxillofacial surgery.
87-256A Oral and Maxillofacial Surgery Research III 1 s.h.
Research in oral and maxillofacial surgery.
87-256B Oral and Maxillofacial Surgery Research IV 1 s.h.
Research in oral and maxillofacial surgery.
87-260 Oral and Maxillofacial Surgery Thesis 3 s.h.
Thesis and oral presentation comprehensive examination over three-year period.
87-265 Oral and Maxillofacial Surgery Thesis 3 s.h.
Thesis oral and written examination comprehensive examination over three-year period.
87-266 Oral and Maxillofacial Surgery Thesis 3 s.h.
Thesis oral and written examination comprehensive examination over three-year period.
87-267 Oral and Maxillofacial Surgery Thesis 3 s.h.
Thesis oral and written examination comprehensive examination over three-year period.
87-268 Oral and Maxillofacial Surgery Thesis 3 s.h.
Thesis oral and written examination comprehensive examination over three-year period.
87-269 Oral and Maxillofacial Surgery Thesis 3 s.h.
Thesis oral and written examination comprehensive examination over three-year period.
Dental Education of the American Dental Association.

Students are trained in all phases of pediatric dentistry, to permit them career choices in pediatrics, academics, or research. Approximately 59 percent of the program is devoted to advanced clinical activity, 30 percent to didactic courses and practice teaching, and 10 percent to original research. The program comprises a core of clinical and basic science courses, supplemented by elective selections determined by the student’s individual interests.

Development of a minor subject area is recommended.

Close association with the Department of Pediatrics in the College of Medicine and with the University Hospital School and The University of Iowa Hospitals and Clinics permits emphasis on medical rehabilitation under general anesthetist, instruction in physical diagnosis, and management of developmentally disabled children.

Research Opportunities
Research carried out by faculty and graduate students in pediatric dentistry has been selected regularly for national awards and journal publications. Clinical and laboratory research projects are in progress, with financial support from federal agencies and other sources. Significant contributions have been made in the areas of caries, dentistry for handicapped persons, fluoride therapy, and child behavior management.

Faculty
Faculty members hold national and state offices, committee memberships, consultancies, and honors in professional organizations. They serve as reviewers for several professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Several members are Diplomates of the American Board of Pediatric Dentistry.

Financial Aid
Significant support is available to qualified students through a grant from the Office for Maternal and Child Health, Bureau of Community Health Services, Department of Health and Human Services.

Admission
Prospective students must apply to the Graduate College.

Courses

Predoctoral
96-148 Pediatric Dentistry: Diagnosis and Treatment 2.5h
Concepts of growth and development, behavior management, and preventive-therapeutic techniques for pediatric dentistry.
96-180 Clinical Pediatric Dentistry 3.0h
Comprehensive clinical management of pediatric patients.
96-180 Clinical Seminar in Pediatric Dentistry 1.0h
Discussion of patient management, case histories, and therapeutic philosophies.

Graduate
30-230 Advanced Electron Microscopy 2.0h
Seminar in 2230, 30-220, 40-220.
30-280 Advanced Topics in Pediatric Dentistry 2.0h
Discussions of growth and development, behavior management, preventive-therapeutic techniques, and diseases of pediatomic patients.
30-230 Research in Pediatric Dentistry 4.0h
Research design and the conduct of an original research project is required with results prepared in a publishable form.
30-230 Double Precedent 4.0h
Preparation of original research projects and completion of work.
30-280 Advanced Clinical Pediatric Dentistry 2.0h
Comprehensive clinical management of pediatric patients in areas of periodontal, restorative, operative therapy, endodontics, and minor oral surgery.
30-261 Pediatric Physical Diagnosis for Special Purposes 2.0h
Principles and techniques for making a physical evaluation of the child.
30-241 Pediatric Therapy for Dental Predispositions 2.0h
Pediatric therapy in various disease conditions.
30-260 General Anesthesia Signatures 4.0h
A 4-credit course designed through the anesthesia service at the University of Iowa Hospitals and Clinics, with emphasis on anesthetic pharmacology and medicine.
30-230 Practice Teaching in Pediatric Dentistry 2.0h
Observation and practice in current teaching procedures.
30-270 Pediatric Dentistry Core Review 4.0h
Prepares pediatric technology with emphasis on recognition of diagnostic abnormalities and common oral and systemic disease, erupes, laboratory, radiographic interpretation, and therapy.

Periodontics
Head: Philip A. Lawlor
Professor: Philip A. Lawlor, Ian C. MacKenzie, William C. Windle, Charles R. Alderson, Jr., Paul von Trat, Elizabeth M. Northey, Margaret J. Dobson
Assistant professor: Paul J. Cole, William R. Gribby, Robert F. Hughes
Degree offered: M.S.

Predoctoral Program
The Department of Periodontology is concerned with the diagnosis, treatment, and prevention of periodontal disease. The periodontal program combines didactic, laboratory, and clinical experience, with emphasis on applying the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal disease.

Graduate Programs
Master of Science
The Master of Science program is designed primarily to provide training for teaching oral research and specialization in periodontics. The program requires: 1) satisfactory completion of at least 27 semester hours of required and elective coursework; 2) preparation and defense of an acceptable thesis based on original research requiring 11 semester hours of research and 3 semester hours of thesis preparation; and 3) satisfactory completion of a comprehensive written and oral examination. Completion of the program requires a minimum of 34 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 will assist in developing individual doctoral programs designed to train individuals for careers in teaching and research in periodontal diseases. Such programs may be interdisciplinary with emphasis on anatomy, chemistry, microbiology, physiology, or psychology.

Certification
Designed to meet all the requirements of the American Board of Periodontology for eligibility for certification, the certification program provides a sound foundation for the clinical practice of periodontics. Completion of the program requires 24 calendar months of full-time study, with satisfactory completion of a minimum of 60 semester hours of required and elective courses. Satisfactory completion of a comprehensive written and oral examination; and an acceptable literature review or research paper.
Graduate Program

The Master of Science degree program prepares the specialist for a career in education and research. The requirements are flexible, permitting the development of a plan of study that will fit the individual needs of each student. Each student is required to prepare a thesis based on original research and pass an oral and/or written comprehensive examination. The student's advisor serves as chair of the examining committee. The student is required to meet all the requirements for the master's degree as outlined in the Manual of Rules and Regulations of the Graduate College.

Minimum requirements for admission to the program correspond to the minimum requirements for admission to the Graduate College. In addition, the student must hold a D.D.S. or D.M.D. degree or its foreign equivalent.

Courses

Predoctoral

80:196 Prosthodontic Materials Laboratory 2 a.h.
Theory and manipulation of dental materials with basic applications. Same as RD 196.

80:198 Removable Prosthodontic Techniques Lec 3 a.h.
Technical procedures in construction of complete and removable partial dentures.

80:199 Removable Prosthodontic Techniques Lab 2 a.h.
Laboratory exercises in construction of complete and removable partial dentures.

80:200 Removable Prosthodontics 4 a.h.
Seminars and clinical experiences, results examinations, diagnosis, prognosis, and treatment of patients requiring complete and removable partial dentures.

Graduate

80:220 Coupled Denture Seminar I 1 a.h.
Review of current research in principles, practices, and concepts of complete denture construction.

80:220 Removable Partial Denture Seminar I 1 a.h.
Review of current research in principles, practices, and concepts of removable partial denture construction.

84:227 Complete Denture Seminar II 1 a.h.
Review of past research in principles, practices, and concepts of complete denture construction.

84:230 Research: Removable Prosthodontics 1 a.h.
Literature review, practical procedures, and data collection for selected research project.

84:231 Thesis Preparation: Removable Prosthodontics 1 a.h.
Preparation and definition of thesis for research project.

84:234 Advanced Clinical Removable Prosthodontics 1 a.h.
Treatment of patients requiring complete and removable partial dentures.

84:235 Technique Methods: Removable Prosthodontics 1 a.h.
Assisted and free bisecting technical methods in construction of complete and removable partial dentures.

84:237 Practice Teaching: Removable Prosthodontics 1 a.h.
Clinical and classroom teaching experiences assigned by advisor.

84:239 Journal Club 1 a.h.
Review of current literature in prosthodontics.

84:251 Library Assignment: Removable Prosthodontics 1 a.h.
Discussion of assigned readings that are considered classics in removable prosthodontics literature.
College of Education

Lindquist Center

Counselor Education..........................278
Early Childhood and Elementary Education..........................281
Educational Administration..........................286
Foundations, Postsecondary and Continuing Education..........................290
Psychological and Quantitative Foundations..........................254
Secondary Education..........................306
Special Education..........................309

Dean: Charles W. Case
Associate deans: Louren, A. Van Dyke
Associate deans: Robert M. Pitch, R. Jernsal Strick
Director, Iowa Testing Program: Leonard Field
Director, Educational Services: Judith O. Hendroff
Degree offered: B.A., B.S., M.A.T., B.A., M.S., Ed.D., Ph.D.
Undergraduate Admission to Elementary and Secondary Teacher Education Programs

Undergraduate applicants to The University of Iowa who are interested in becoming teachers should indicate their proposed College of Education major or their interest in a secondary-level teaching endorsement program on the application for admission. Students already enrolled at The University who decide to enter a Teacher Education Program (TEP) and who meet eligibility requirements, should submit an application to the Office of Student Services, N310 Old Union Center.

General Requirements

Before being formally admitted 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).

Attained sophomore standing (28 semester hours) prior to the semester during which he or she seeks to enroll in the foundations of education sequence of courses;

Achieved a 2.3 grade-point average on all college course work and course work completed at The University of Iowa and

Submitted an Application for Admission to a Teacher Education Program.

Additional Requirements for Admission to Special Education

Students seeking a major in the elementary mentally retarded program must also earn a minor in elementary education. Students seeking a major in the secondary-level mentally impaired program do not need to complete a minor major. For each of these programs students must meet the general admission requirements of the undergraduate Teacher Education Program.

Enrollment in each of the special education programs is limited to a fixed number of students. Applicants who meet the minimum general requirements for a Teacher Education Program are then chosen for each special education program on a competitive basis. The selection procedures are as follows:

Application deadline is May 15 preceding the academic year in which the applicant plans to enroll.

Applicants for the elementary mental retardation, secondary mental retardation, or preschool handicapped program will be ranked on the basis of cumulative college grade-point average. Further, students with documented successful experience with the handicapped will be given preference over applicants without experience. Forms for documenting successful experience may be obtained from the Division of Special Education. Students wishing to gain experience prior to applying to be admitted contact the Division of Special Education for a list of ways to gain such opportunities in the Iowa City area.

Twenty students will be admitted each year to the elementary mental retardation program. Fifteen students will be admitted each year to the secondary mental retardation program. Twenty students will be admitted each year to the preschool handicapped program. The admission process will take place as soon as spring transcripts become available to the Division of Special Education. All students will be notified by mail (usually about July 1) expressing their admission to programs.

Late applications will be considered on a first-come, first-served basis only when positions are filled. Students transferring to The University of Iowa from special education programs at other colleges or universities may be admitted to second-year courses only if space permits.

Graduate-Level Admission to Teacher Education Programs

Students who have completed a bachelor’s degree may be admitted to a Teacher Education Program in one of two ways.

They may apply to the Graduate College with their objective stated as “Certification only” and contact the Division of a Master in Arts in Teaching (M.A.T.) objective. Students selecting this route must satisfy the following conditions:

- Admission to the Graduate College;
- A cumulative grade-point average of not less than 2.5 on undergraduate work, 3.0 notably 3.0, objective.

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 a postbaccalaureate student with senior standing. Students selecting this route should not apply as special students. They must apply to the appropriate Teacher Education Program following the undergraduate admission procedure and must meet the general requirements stated in the undergraduate admission section.

Student Teaching

The final phase of the Teacher Education Program is the professional experience, devoted to supervised student teaching and directed observation in a variety of situations. Periodic seminars provide for discussion and evaluation of student teachers’ experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with approval in advance.
Admission to the senior year student teaching semester is by separate application. This application must be submitted by March 15 of the academic year preceding the one during which the student teaching is to be completed to the Office of Student Services at 330 Linscott Center. Opportunities for overseas and urban student teaching experiences are available. Requirements for admission to student teaching vary by program and academic area. Students should consult with their advisors concerning specific requirements for the semester programs.

Waivers

Students who have completed practicum-type experiences or courses that they feel should be considered in lieu of requirements should consult with their advisors concerning waiver procedures.

Urban Student Teaching

Students who feel they may better advance their educational interests through student teaching in an urban setting may apply for this type of experience through the Office of Student Field Experiences. Pre- Dept settings for urban student teaching include the CSTE Program (Cooperating Urban Teacher Education). This option is open to all education majors (bilingual, elementary, secondary, and special education) who meet the requirements for student teaching.

Overseas Student Teaching

In cooperation with the University of Wisconsin—River Falls, a split student-teaching assignment is available (eight weeks in one of our regular centers and eight weeks in an overseas setting). The overseas sites available include: Ireland, England, Scotland, Wales, and Australia. In most localities, students are assisted by housing on the co-site coordinator. Students electing this program must meet the regular requirements for student teaching.

State Requirements

Certification to teach in most states, including Iowa, requires a course in American government or American history. The general education (social sciences) course 30:1 Introduction to American Politics satisfies this requirement.

All students seeking an Iowa certificate must complete a course in human relations. This requirement may be met by completing 71:190 Human Relations for the Classroom Teacher.

Special Requirements

Students admitted to TEP for the fall semester 1984 and thereafter must complete 71W:300 Introduction to Microcomputing for Teachers or demonstrate basic competency in the use of computers. Students admitted for the fall semester 1984 and thereafter must also demonstrate prior to program completion competency in communication and mathematics skills as prescribed by the given teacher education program area.

Minors

In addition to offering many programs of preparation for teachers, the College of Education offers four minors for students who are simply interested in being better informed about education. These interest may arise from the idea of being better informed as a parent, as a taxpayer, or as a future member of a local board of education. Or, a given student may feel that such information would be supportive of a future career objective. The four available minors are general education, science education, human relations, and educational psychology. Descriptions of these minors are available in the Office of Student Services.

Graduate Programs

Graduate study in the College of Education is guided by the general regulations of the Graduate College, with certain additional requirements imposed by the faculty of the College of Education. Graduate students in education register in the Graduate College and receive their degrees from that college.

Master of Arts

The College of Education offers a Master of Arts degree on both a thesis and non-thesis basis in each of the divisions. The non-thesis M.A. program usually provides more specialized course work than is found in the M.A. thesis program. The non-thesis program is not necessarily a terminal program, but students who expect to continue their studies on a doctoral or professional level are urged to select the M.A. thesis program, which offers more experience in research procedures. Students who complete a non-thesis M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of additional research and breadth of reading and research skills to their advisor or division during the early part of their doctoral program.

Master of Science

Thesis and non-thesis programs are available for students who want a science concentration. The degree criteria and the use of the programs are similar to those above for the Master of Arts degrees.

Master of Arts in Teaching

The M.A.T. program is a 38 semester hour (minimum) non-thesis program designed for academically superior liberal arts graduates who completed few or no professional education courses in their undergraduate programs. The program leads to a master’s degree and certification as a secondary teacher in such fields as English, foreign languages, home economics, and science. A grade-point average of at least 3.0 on undergraduate course work is required for admission. At least 18 semester hours of graduate course work in the student’s proposed teaching field must be completed. A sufficient number of semester hours of graduate work in education (not less than 25) must be taken to satisfy certification requirements.

Education Specialist

This degree is granted upon completion of a prescribed two-year, post-master’s program designed for educators preparing themselves professionally in such fields as teaching, administration and supervision, and special services. The minimum of 60 semester hours required for the degree, 28 are prescribed in the area of specialization, the remaining credit may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report. Other requirements and regulations applicable to the E.S.S. are the same as for the master’s degree, except that 15 semester hours of resident work on campus are required in one 12-month period or in two summer sessions, and course work completed ten years prior to the final examination must be evaluated to determine the amount of credit that may be accepted toward fulfillment of the program requirements.

Doctor of Philosophy

The Ph.D. is the highest academic degree and is conferred upon those students who have demonstrated the capacity to conduct and master of research skills in course work and experience in the preparation and defense of a dissertation.

Professional Improvement

Students may be admitted to a professional improvement program for purposes of taking in-service courses rather than a degree program. This program provides for enrollment in courses which are appropriate for persons seeking salary credits, who are underdeveloped in career plans, or whose applications are too late to permit processing for regular admission into degree programs. Faculty review committees may admit students to this program rather than as degree candidates due to incommensurate experience, under-degree objectives and the like, in order to permit registration in the University.

Bulletin

Prospective graduate students should write to the College of Education for the bulletin, Advanced Study in Education, which provides specific information about the various programs, admission procedures and requirements, and rules and regulations.
Support Units and Special Resources

The Computer Resources Laboratory offers hardware and consulting support for computer applications and instructional development related to the College of Education.

The Curriculum Resources Laboratory provides materials primarily for students and faculty members interested in early childhood, elementary, and secondary instructional materials. It brings into a convenient central location approximately 27,000 items, textbooks, software, and periodicals. The laboratory allows students to access and review content using computer software.

The Audiovisual Production Laboratory houses a variety of instructional equipment and materials. Its facilities provide opportunities to develop skills in design and production of instructional materials and in the operation of instructional equipment. The laboratory extensively supports and provides a variety of services and materials related to instructional development.

The Iowa Production Laboratory offers access to audio and video production. These services range from equipment check-out and micro-teaching facilities use to the design and production of high-quality audio and video programs. The Iowa Production Laboratory also offers workshops and credit courses through the College of Education.

The Educational Placement Office assists students and alumni seeking teaching, administrative, and related positions in all levels and in all fields. Services include individual consultation and group assistance with job search skills and employment opportunities, placement of graduates in both teaching and non-teaching positions, establishment of a placement file, and opportunities for interaction with school recruiters on campus. An information center with resources covering career information, directories of schools, colleges, and agencies, and community and state data is available for students planning careers in education and related areas.

The Main Library and the Psychology Library provide books, periodicals, reference books, CD-ROMs, microfiche, microfilm, and a reserved book room for students and faculty.

The Iowa Testing Program's staff develops standardized educational tests, such as the widely-used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research studies in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposia, provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics.

The North Central Association (NCA) of College and Schools is the largest and most active of six regional accrediting associations in the United States. Iowa is one of 19 NCA-member states. The NCA's primary purpose is to foster improvement in education at the elementary, secondary, and collegiate levels by self-examination of educational programs, by promoting leadership and adherence to policies and standards for continued membership. The University of Iowa and schools support the office of State Director of the Iowa NCA State Committee.

The Office of Research and Development provides support services for faculty research, development, and grant administration and coordinates such efforts with the University Division of Extramural Programs. It initiates and maintains contacts with federal agencies, state agencies, and private foundations for the purpose of identifying potential research opportunities. It disseminates information to faculty concerning research opportunities and research being conducted.

The School Program for Emotionally Disturbed Children is located in the children's psychiatry unit of the University's Psychiatric Hospital. Children attending this school are residential patients in the children's psychiatry unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teaching and practicum experience in school psychological services.

University Counseling Services provides research and practical opportunities for students in counseling psychology.

University Hospital School is a University-affiliated facility and, as such, strives to provide a laboratory setting for the direct services in developmentally disabled programs, interdisciplinary training activities for personnel, and research projects in program development and effectiveness.

Teacher Certification Services

Though each state has its own teacher-certification requirements, a majority of state certifying agencies have entered into an agreement to issue certificates to applicants who have completed approved teacher education programs in institutions accredited by the National Council for Accreditation of Teacher Education.

The College of Education Office of Student Services provides Iowa application forms and certification assistance to all students completing Teacher Education Programs.

Financial Aid

Persons interested in employment opportunities in any of the support units and special resources listed above should contact the director of each facility and indicate their interest, their academic and experience records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide graduate assistantships in teaching, research, or service assistantships, as well as for fellowship and related development opportunities. Inquiries should be addressed to the chair of the division or to the director of the special program in an area in which the student believes he or she can provide service or achieve an outstanding academic record. If the student has applied for admission, his or her student file is available for review by those responsible for selecting the assistantship(s) for the students program. All assistantships are usually, but not always, made from within the program area of the assistantship.

Special Graduate Assistantships in Education

The Iowa Testing Programs and the Iowa 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 in the University of Iowa are eligible to apply, provided they meet the requirements for these assistantships.

The assistantships are for the academic year only, are renewable for a limited number of times, and, at the present, provide stipends similar to those of other assistantships. Holders are assigned to work under the direction of a faculty member and must be enrolled for not less than 9 nor more than 12 semester hours per semester. All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), list of recommendations, and scores on the Graduate Record Examination (GRE) Aptitude Test. The application must be filed at a special form that may be obtained from the director of the Iowa Testing Program, 334 Lindquist Center, College of Education. The application deadline is March 1.

Loans and Outside Employment

Information about commercial and federal loans as well as part-time employment in the University and the community may be obtained from the Office of Student Financial Aid.
A personal or telephone interview may be requested.

Three current letters of recommendation from persons in a position to assess the applicant's prospects for completing the M.A., Ed.D., or Ph.D., as well as indications of serious commitment to the profession, are required.

In addition to the above:

M.A. Candidates

Undergraduate grade-point average of 2.75 or better and a Composite (verbal and quantitative) GRE score of 1000 or better.

Ed.D. Candidates

A graduate grade-point average of 3.25 or better and a Composite (verbal and quantitative) GRE score of 1000 or better.

Ph.D. Candidates

Undergraduate grade-point average of 3.0 or better or a graduate grade-point average of 3.3 or better if a graduate degree has been completed. Composite (verbal and quantitative) GRE score of 1100 or better. Typically, doctoral students are not admitted unless they have completed a master's degree in counseling or related field. Relevant work experiences are important. In those cases where a student is accepted without a master's (or a master's unrelated to counselor education), core level master's level coursework must be completed before taking doctoral level advanced courses. Master's level courses and experiences to be completed are typically up to the advisor and included in a student's curriculum plan.

International Students

International students must also provide a Test of English as a Foreign Language (TOEFL) score with their applications. Typically, a minimum TOEFL score of 550 is required. Depending on the TOEFL score, the division may require students to take and pass course work in English usage at the University of Iowa that is designed especially for them.

All the criteria listed above are considered minimum standards for consideration for admission. Final decisions on admissions are made by faculty committees and take into account the composite as an indicator of a student's likelihood for success in the division. Also, some programs may have specific admissions requirements due to certification standards. For example, a teaching certificate is required for students pursuing a degree in counseling. Any special admissions requirements are listed with individual programs.

Conditional Admissions

Applicants who do not meet all the minimum requirements for regular admission consideration may be admitted on a conditional basis if the faculty determines that there are strength and promise warranting conditional status. The following are divisional conditions:

M.A. Level—A student must complete 12 semester hours of core courses (approved by advisor) over two consecutive semesters and earn a minimum cumulative grade-point average of 3.0.

Ph.D. Level—A student must complete 12 semester hours of core courses (approved by advisor) over two consecutive semesters and earn a minimum cumulative grade-point average of 3.3.

Application Deadlines

M.A. and Ed.D.—June 1 for fall semester (rehabilitation counseling only admits for fall semester); November 1 for spring semester, April 1 for summer session; Ph.D.—March 1 for fall semester.

Admissions must be completed before they will be reviewed. The applicant is responsible for providing a complete application dossier. Application forms may be picked up from the Division of Counselor Education Secretary, NOSB Lindquist Center, University of Iowa, Iowa City, IA 52242. Phone (319) 335-3070. In order to check on whether an application dossier is complete contact Office of Student Services, NOSB Lindquist Center, University of Iowa, Iowa City, IA 52242, (319) 335-5546.

Admission applications will be acted upon immediately after each deadline and applicants will be notified in writing. Applicants who are accepted must reply in writing in order to maintain their admission status.

Maintaining Candidacy—M.A., Ed.D., and Ph.D.

All graduate students must meet the following standards in order to maintain their candidacy for degree:


Successful completion of practicum, internship, or equivalent professional experience;

Maintain professional behavior consistent with the AACD Code of Ethics, and any additional code of professional ethics adhered to in any agency to which the student is completing a practicum or internship;

Demonstrate progress toward the degree as evidenced by successful completion of hours as specified in curriculum plan.

Progress toward the degree entails active registration each session. Exceptions may be approved by the adviser.

NITE: All division students are reviewed annually.

Probationary Status

Any M.A. student who receives less than an overall 3.0 grade-point average or Ph.D. student less than a 3.3 grade-point average will be on probation status. A student on probation status will have two consecutive semesters to raise the grade-point average. If the probationary status is not met, one student may be removed from the program. Each student is allowed one probation status during his or her program of study.

Student Development in Postsecondary Education

Master of Arts

The M.A. program provides preparation for college positions in admissions, student activities, financial aid, student union, career planning and placement, residence halls, foreign student services, community college counseling, adult continuing education, and external degree programs, and, with experience, as student affairs or college teachers.

No specific program of undergraduate study or work experience is required for admission to the M.A. program. A personal interview is desirable, but not required.

Education Specialist

The Ed.S. program provides specialized professional preparation in college student development beyond the master's level for persons not planning to enter doctoral study; to prepare candidates for positions such as associate dean or dean of students in a small college or director of admissions, student activities, financial aids, student unions, career planning and placement, residence halls, foreign student services, community college counseling service, adult continuing education, external degree programs, and, with experience, as college teachers.

Doctor of Philosophy

The Ph.D. program provides preparation for such positions as counselor educator, researcher, associate dean or dean of students, or as director of admissions, student activities, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counseling service.
Substance Abuse Counseling

Master of Arts

The purpose of the M.A. program in substance abuse counseling is to prepare individuals to function in a wide variety of substance counseling settings. The emphasis is on individual, group, and family counseling.

Facilities

A wide variety of counselor education practicum experiences is 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 all the divisions. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

Financial Aid

Depending on federal lending, graduate training fellowships may be 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 all the divisions. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

Courses

TC411 Making a Vocational-Educational Choice

The course assists students in choosing a career based on their interests and abilities. It covers the basics of career counseling and is designed to help students develop an understanding of the world of work.

TC403 Student Development for Residence Hall Staff

The course provides strategies and techniques for creating a safe and positive environment. It covers topics such as conflict resolution, stress management, and group dynamics.

TC405 Introduction to Peer Counseling

The course introduces students to the basics of peer counseling. It covers topics such as communication, active listening, and problem-solving techniques.

TC102 Career Guidance and Job Placement

The course introduces students to the basics of career development. It covers topics such as job search strategies, interview techniques, and resume writing.

TC113 Human Sexuality

The course covers the biological and psychological aspects of human sexuality. It covers topics such as gender identity, sexual orientation, and sexual health.

TC1313 Therapist and Client Relationship

The course explores the dynamics of the therapist-client relationship. It covers topics such as trust, boundary issues, and communication techniques.

TC319 Social Work and the Law

The course introduces students to the legal aspects of social work. It covers topics such as ethical decision making, legal issues in social work, and social work advocacy.

TC3100 Research Methods

The course introduces students to the basics of research methods. It covers topics such as research design, data collection, and statistical analysis.

TC3101 Professional Ethics

The course explores the ethical issues in social work. It covers topics such as confidentiality, informed consent, and professional boundaries.

TC3102 Social Policy and the Social Work Profession

The course explores the impact of social policies on social work practice. It covers topics such as social welfare programs, social justice, and social work advocacy.

TC3103 Community Organization and Human Services Administration

The course explores the dynamics of community organization and human services administration. It covers topics such as community development, community organizing, and community-based services.

TC3104 Introduction to Human Services Administration

The course introduces students to the basics of human services administration. It covers topics such as program planning, program evaluation, and program management.

TC3105 Introduction to Social Work

The course introduces students to the basics of social work. It covers topics such as social work theory, social work practice, and social work ethics.

TC3106 Social Work Research

The course explores the dynamics of social work research. It covers topics such as research design, data collection, and statistical analysis.

TC3107 Social Work Practice

The course explores the dynamics of social work practice. It covers topics such as social work theory, social work practice, and social work ethics.

TC3108 Social Work Theory

The course explores the dynamics of social work theory. It covers topics such as social work theory, social work practice, and social work ethics.

TC3109 Social Work Ethics

The course explores the dynamics of social work ethics. It covers topics such as ethical decision making, informed consent, and professional boundaries.
Undergraduate Programs

Students pursuing a major in elementary education or in early childhood education may elect to meet requirements for either the B.A. or the B.S. degrees. The B.A. degree requires four semesters of study or the equivalent in one foreign language. All other respects the B.A. and B.S. degree requirements are identical. Required by the elementary program only is:

228:48 Theory of Arithmetic 3 s.h.

Required by both programs are the following foundations courses, which should be completed by the sophomore year:

7E:75 Educational Psychology and Measurement 3 s.h.
7E:130 Introduction: Elementary and Early Childhood Teaching 3 s.h.
7W:31 Audio-Visual Equipment for Instruction 1 s.h.
7W:32 Introduction to Microcomputing for Teachers 1 s.h.
A course in American History or American politics 3-4 s.h.
Also required, usually completed during the junior or senior year, is the following:
7E:170 Human Relations for the Classroom Teacher 3 s.h.

Early Childhood Education

Early childhood teachers serve in a variety of organizational settings including preschools, kindergartens, and classrooms in the public-school system. Head Start and other publicly-funded pre-kindergarten classes, or day care centers, and privately funded early childhood centers serving children from infancy to fifth-grade entrance. Preparation for early childhood teaching includes the study of child development, parent-child relationships, and the organization and administration of child care centers, in addition to appropriate curriculum and methodology for young children. The program requires a minimum of four practicum experiences with children of different ages within the early childhood years in public or private early childhood centers or classrooms. This program meets the requirements of the Iowa Endorsement 52 for pre-kindergarten and kindergarten teachers. Students interested in dual certification at the pre-kindergarten and kindergarten level and the kindergarten and elementary level should elect the elementary education major as described in a subsequent section of this Catalog and its early childhood education area of specialization. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 10 (K-5) and 51. Students interested in dual certification as teachers of pre-kindergarten and kindergartens and pre-school handicapped children should refer to "Special Education" in this section of the Catalog. Separate application for admission to this program must be made to the Division of Special Education. A student who successfully completes this combination is eligible for Iowa Endorsements 53 and 9.

In addition to the foundations courses listed above, the following must be completed before student teaching:
17:130 Growth and Development of the Young Child 3 s.h.
7E:106 Child Development 3 s.h.
17:124 Nutrition Work with Children 3 s.h.
(Same as 7E:102)
7E:120 Methods and Materials: Music for the Classroom Teacher 3 s.h.
7E:122 Methods and Materials: Art for the Classroom Teacher 3 s.h.
7E:123 Literature for Children I 3 s.h.
7E:127 Methods: Early Childhood Education I 3 s.h.
7E:92 Pre-Education Practicum, Pre-Kindergarten 1 s.h.
(Consent of 7E:167)
7E:167 Methods: Early Childhood Education II 3 s.h.
7E:93 Pre-Education Practicum, Kindergarten and Early Elementary 1 s.h.
(Consent of 7E:167)

Additional courses, required to complete the early childhood education major, which may be taken before or after student teaching, follow:
17:114 Parent-Child Relationships 3 s.h.
7U:133 The Culturally Different in Educational Settings 3 s.h.
or
7E:165 Methods: Multicultural/Bilingual Education 3 s.h.
7E:195 Multicultural Concepts and Educational Systems 3 s.h.
7E:180 Development and Administration of Child Care Centers 3 s.h.

Students must also take a minimum of three courses (3 semester hours) in one of the following areas of specialization: child and family services, the family, child development, and pre-school handicapped children. Copies of specialization requirements are available in the Office of Early Childhood and Elementary Education office. These courses may be taken in any sequence if they are offered with that option.

Each semester of student teaching (15 semester hours) is required. The appropriate student teaching assignment is determined by the student's academic advising in consultation with the student. Students should submit student teaching applications to the Office of Student Services by March 15 preceding the academic year during which they plan to do their student teaching.

Elementary Education

Elementary teachers serve in a variety of school settings, including self-contained rooms in which the teacher assumes responsibility for all of the curricular areas, departmental positions in which their responsibilities are concentrated in one or two subject areas, and team teaching assignments in which two or more teachers assume shared responsibility for the total instructional endeavor. Preparation for elementary teaching involves the acquisition of a broad general education background, in-depth study of at least one elementary curriculum subject area, and professional study of the learning processes and selection of appropriate curricular materials suitable for school age children, and of the methodological procedures most appropriate for presenting these materials. The program's study is rigorous. It involves wide reading, creative planning, and application of knowledge in the classroom.

The program is designed specifically to prepare students to teach kindergarten through sixth grade. Special sequences are also available for students seeking the pre-kindergarten/Kindergarten endorsement and for those seeking approval for teaching in middle schools or junior high schools. Students interested in certification for elementary teaching and approval for special education should consult the requirements for admission to each of these programs. Students interested in this program are encouraged to make a separate application to each program and these applications will be considered independently.

The foundations courses listed earlier in this section are required. Approval may be taken concurrently with 7E:130: Introduction to Elementary Education, and Early Childhood Teaching, in the following:

7E:91 Pre-Education Practicum, Elementary Education 1 s.h.
(To meet the foundations requirements, graduate students may elect equivalent graduate courses, in consultation with their advisor.)

The student must complete the following elementary methods courses to be eligible for student teaching:
7E:146 Methods: Elementary School Language Arts 3 s.h.
7E:160 Methods: Elementary School Social Studies 3 s.h.
7E:152 Methods: Elementary School Science 2 s.h.
7E:153 Methods: Elementary School Mathematics 2 s.h.
7E:184 Methods: Elementary School Reading 3 s.h.

An area of specialization is required in a teaching field. The area of specialization offered are Elementary Art, the arts in early childhood and elementary education, bilingual education, early childhood health education, elementary language arts, elementary mathematics, multicultur
education, elementary music, elementary reading, elementary physical education, elementary science, elementary social science, special education, and elementary general.

The student should consult his or her adviser regarding course offerings and preparation for teaching in a subject area and meet the specific entrance requirements for that area. Copies of the requirements for each area of specialization and education are available in the Division of Early Childhood and Elementary Education office. Courses in the area of specialization may be taken pass-fail only if they are offered with the pass-fail option.

Required is a minimum of 15 semester hours of credit in student teaching. Students must apply to the Office of Student Services by March 15 of the preceding academic year during which they plan to do their student teaching.

Students should consult with their advisers concerning the appropriate registration pattern.

Graduate Programs

Master of Arts

Early Childhood Education

The program is designed to prepare persons to administer and/or deliver care and education to children from infancy through the early primary grades in private and public settings, or to serve as early childhood consultants or community college teachers. The program is designed for students whose professional preparation is to be given to those persons who wish to work with young children and who are interested in the education and development of young children, in colleges of education, home economics, social work, or child development.

A core of courses (or their equivalents) is required of all students:

TE 190 Development and Administration of Child Care 3 s.h.
TE 264 Building Foundations for Reading Pre-Primary and Primary 2-3 s.h.
TE 267 Curriculum Development in the Kindergarten and Early Primary 2-3 s.h.
TE 269 Curriculum Development in Pre-Kindergarten 3 s.h.
JE 308 Comparative Early Childhood Education 3 s.h.

In addition, a course in each of the following two areas is required:

Parent-child relationships and family development, and child development and psychology. The remainder of the required 32 semester hours (30 with thesis) are electives mutually chosen by the student and the academic adviser.

Elementary Education

This degree program, which may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum), is designed to prepare master's degree candidates in elementary education to serve as team leaders, grade level or subject area supervisors, or curriculum consultants. Successful completion of this degree, together with four years of successful teaching experience, qualifies the student for certification as an elementary school supervisor, Iowa Endorsement 1B. Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in either early childhood or elementary education.

Each candidate must meet at least one course in each of these areas: social foundations, curriculum, educational psychology and measurement, and supervision. In addition, each candidate must complete an area of specialization and selected course work in advanced methodology.

Graduate students who have not completed an undergraduate program in elementary education may be admitted initially as "certification only" candidates.

Developmental Reading

This degree program is designed to prepare graduate students for positions as reading specialists in kindergarten through grade 1-2. Successful completion of this program, together with four years of successful teaching experience, qualifies the student for certification as a reading specialist, Iowa Endorsement 54. The program is offered with thesis (30 semester hours minimum) and without (32 semester hours minimum).

The following are required of all candidates:

TE 171 Reading Clinic: Teaching Techniques 2-3 s.h.
TE 172 Reading Clinic: Teaching Practices 2-3 s.h.
TE 264 Building Foundations for Reading: Pre-Primary and Primary 2-3 s.h.
TE 265 Supervision of Intermediate Grades Reading, and Educational Development 3 s.h.
TE 294 Methods: High School Reading 2-3 s.h.
TE 295 Seminar: Secondary Reading or JE 308 Seminar: Research and Current Issues (Reading) arr.

In addition, candidates must complete one or more courses each in the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the adviser's approval.

Master of Science

Elementary Science

This degree program is designed to prepare master's degree candidates in elementary science to serve as team or departmental science specialists. The program may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum).

Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in elementary education.

The following are required of all candidates:

TE 255 Science Education: Issues, History, and Rationale 2-3 s.h.
TE 256 Science Education: The Nature of Science 3 s.h.
TE 257 Science Education: Teaching, Learning, and Curriculum Models 2-3 s.h.
TE 258 Science Education: Research Models and Conceptual Schemes 3 s.h.
TE 202 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.

Science courses to complete the number of semester hours required are selected by the candidate in consultation with the academic adviser.

Doctor of Philosophy

Elementary Education

The purpose of this program is to prepare students for college and university teaching and research positions in elementary education. The program is offered with research, curriculum, supervisory, or administrative positions in public school systems and government educational agencies.

The program requires a minimum of 90 semester hours, including hours needed for the dissertation. Each student prepares an independent plan of study in consultation with an advisor. The final plan must be approved by the advisor and the division chair.

As a general guideline, each student is expected to have a good general background in all facets of elementary school education and a very strong area of specialization in at least one facet. Currently selected specialized areas are elementary school administration, children's literature, early childhood, curriculum, language arts, mathematics, reading, and social studies.

Each doctoral student must also complete a cognate or related field of concentration. The external field may be a professional specialization, such as educational psychology and measurement, special education, or general school administration; or it may be a subject field, such as English.
Teaching Early Childhood and Elementary Education

TE307 Curriculum Development in Early Childhood and Elementary Education 3.0 s.h.

This course introduces educators to the principles and practices of curriculum development. Focus is on creating a curriculum that is inclusive and responsive to the needs of diverse learners. Prerequisite: Consent of instructor.

TE308 Curriculum Development in Pre-Kindergarten 3.0 s.h.

This course provides an overview of the major curricular frameworks and the role of the early childhood educator in implementing them. Emphasis is on developing and implementing effective early childhood programs.

TE309 Comparative Early Childhood Education 3.0 s.h.

This course compares and contrasts the history and philosophy of early childhood education, including its roots in Europe, the United States, and other cultures. It also examines the role of the teacher in the early childhood classroom.

TE310 Advanced Reading Clinic Techniques 2.0 s.h.

This course focuses on advanced techniques for teaching reading, including phonics, fluency, comprehension, and vocabulary development. Prerequisite: Consent of instructor.

TE311 Supervision of Student Teachers and Auxiliary Personnel 2.0 s.h.

This course provides an overview of the responsibilities of a supervisor in guiding and supporting student teachers. It also covers the role of the auxiliary personnel in the educational setting.

TE312 Induction in Elementary Education 3.0 s.h.

This course introduces new elementary teachers to the profession, including educational philosophy, classroom management, and teaching strategies.

TE313 Design and Organization of Curriculum 3.0 s.h.

This course focuses on the development of coherent and effective instructional programs. It covers the selection and organization of content, assessment, and instructional delivery.

TE314 Instructional Technology in Elementary Education 3.0 s.h.

This course examines the use of technology in the classroom, including the integration of digital tools and software to enhance teaching and learning.

TE315 Introduction to Research in Education 3.0 s.h.

This course provides an introduction to research methodology, including research design, data collection, and analysis.

TE316 Introduction to Research in Education 3.0 s.h.

This course provides an introduction to research methodology, including research design, data collection, and analysis.

TE317 Student Teaching 3.0 s.h.

This course provides an opportunity for students to apply their knowledge and skills in a real-world teaching environment. It includes supervised student teaching in an elementary school setting.

Teaching Science and Mathematics

TE318 Introduction to Science Education 3.0 s.h.

This course introduces students to the principles and practices of teaching science. It covers the history of science education, the scientific method, and current educational reform issues.

TE319 Laboratory Science and Mathematics 3.0 s.h.

This course provides hands-on experience in conducting scientific experiments and analyzing data. It also covers the development of scientific thinking skills.

TE320 Mathematics Education 3.0 s.h.

This course examines the teaching of mathematics, including its history, philosophy, and current trends in curriculum development.

TE321 Research in Science Education 3.0 s.h.

This course focuses on research methods in science education, including qualitative and quantitative research designs.

Educational Administration

Chair: Walter J. Foley

Teaching Elementary Education 3.0 s.h.

This course introduces students to the principles and practices of teaching in elementary education. It covers curriculum development, instruction, and assessment.

Teaching Secondary Education 3.0 s.h.

This course focuses on teaching in secondary education, including the development of curriculum, instruction, and assessment in the high school setting.

Teaching Special Education 3.0 s.h.

This course provides an overview of special education, including identification, evaluation, and instructional strategies for students with special needs.

Teaching English as a Second Language 3.0 s.h.

This course examines the principles and practices of teaching English to speakers of other languages. It covers language acquisition, teaching strategies, and assessment.

Teaching Advanced Placement 3.0 s.h.

This course prepares students to teach Advanced Placement courses, including the development of course content, instruction, and assessment.

Teaching Dual Language 3.0 s.h.

This course focuses on teaching in a dual language environment, including curriculum development, instruction, and assessment.

Teaching Gifted Students 3.0 s.h.

This course examines the principles and practices of teaching gifted students, including identification, instructional strategies, and assessment.

Teaching Urban Education 3.0 s.h.

This course focuses on teaching in urban schools, including curriculum development, instruction, and assessment.

Teaching Rural Education 3.0 s.h.

This course examines the principles and practices of teaching in rural schools, including curriculum development, instruction, and assessment.

Teaching Exceptional Students 3.0 s.h.

This course provides an overview of exceptional students, including identification, evaluation, and instructional strategies.

Teaching Multicultural Education 3.0 s.h.

This course focuses on teaching in a multicultural environment, including curriculum development, instruction, and assessment.

Teaching School Leadership 3.0 s.h.

This course examines the principles and practices of school leadership, including curriculum development, instruction, and assessment.

Teaching School Administration 3.0 s.h.

This course provides an overview of school administration, including curriculum development, instruction, and assessment.

Teaching School Finance 3.0 s.h.

This course examines the principles and practices of school finance, including budgeting, financing, and accounting.

Teaching School Personnel 3.0 s.h.

This course focuses on teaching personnel management, including hiring, evaluation, and termination.

Teaching School Law 3.0 s.h.

This course examines the principles and practices of school law, including legal issues in education and the responsibilities of school administrators.

Graduate Programs

Master of Arts

The purpose of this program is to prepare students for advanced positions in educational administration, educational leadership, or related fields. It requires a minimum of 30 graduate hours and includes a comprehensive exam.

Professional Teaching Certificate

The purpose of this program is to prepare students for teaching in elementary or secondary schools. It requires a minimum of 30 graduate hours and includes a comprehensive exam.

Certification

To be eligible for recommendation by The University for any state certification as a teacher, an applicant must have completed a baccalaureate degree from an accredited institution, have a minimum of 30 semester hours in the area of certification, and have a minimum of 30 semester hours in the area of certification.

To be eligible to hold an Iowa Professional Teaching certificate, an applicant must have completed a baccalaureate degree from an accredited institution, have a minimum of 30 semester hours in the area of certification, and have a minimum of 30 semester hours in the area of certification.

Graduate Programs

Master of Arts in Education

The purpose of this program is to prepare students for advanced positions in educational administration, educational leadership, or related fields. It requires a minimum of 30 graduate hours and includes a comprehensive exam.

Professional Teaching Certificate

The purpose of this program is to prepare students for teaching in elementary or secondary schools. It requires a minimum of 30 graduate hours and includes a comprehensive exam.

Certification

To be eligible for recommendation by The University for any state certification as a teacher, an applicant must have completed a baccalaureate degree from an accredited institution, have a minimum of 30 semester hours in the area of certification, and have a minimum of 30 semester hours in the area of certification.
without thesis (32 semester hours minimum)

Course Requirements
With the aid of an advisor, the student prepares a plan of study including these core requirements:

All Candidates
TD201 Foundations of School Administration
3 s.h.

TD203 Computer Applications in Education
2-3 s.h.

TD205 Elementary School and Students with Special Needs
3 s.h.

TD211 The Principalship
3 s.h.

TD218 Legal Aspects of School Personnel
3 s.h.

TD350 Supervision of Instruction
2-3 s.h.

TE300 Design and Organization of Curriculum
3 s.h.

The student must meet the human relations requirement of the State of Iowa and specialize in elementary, secondary, middle school/junior high, or central staff administration by completing one of the programs outlined below. The candidate may choose electives approved by the advisor to satisfy degree requirements.

Elementary Level

Required
TD228 Contemporary Management Strategies for the Elementary Principal
3 s.h.

TD302 Field Service Project in Educational Administration (elementary)
arr.

Electives
EP117 Philosophies of Education
2, 3, 5 s.h.
EP120 Introduction to Educational Measurement
3 s.h.

TE202 School Organization Patterns
3 s.h.

TE241 Organized Techniques of Teaching Science in the Elementary School
3 s.h.

TE267 Curriculum Development in the Kindergarten and Early Primary
2-3 s.h.

TE303 Seminar: Administration and Coordination of Curriculum
2-3 s.h.

TE304 Seminar: Supervision and Administration
2-3 s.h.

TE381 Analysis and Appraisal of Curriculum
2-3 s.h.

TE250 Supervision of Elementary School Programs
3 s.h.

TE261 Supervision of Elementary School Social Studies
3 s.h.

TE263 Supervision of Elementary School Mathematics
3 s.h.

TE265 Supervision of Intermediate Grade Reading
3 s.h.

TE268 Curriculum Development in the Pre-Kindergarten
3 s.h.

TE268 Supervision of Student Teachers and Auxiliary Personnel
2-3 s.h.

Middle School/Junior High Level

Required
TD228 Contemporary Management Strategies for the Middle School/Junior High School Principal
3 s.h.

TD302 Field Service Project in Educational Administration (middle school/junior high)
arr.

Electives
Elected selected with the consent of the advisor from elementary and secondary levels to reflect a balanced program.

Secondary Level

Required
TD228 Contemporary Management Strategies for the Secondary Principal
3 s.h.

TD302 Field Service Project in Educational Administration
arr.

Electives
EP117 Philosophies of Education
2, 3, 5 s.h.
EP121 Educational Psychology
3 s.h.
EP140 Introduction to Statistical Methods
3 s.h.

6L153 Collective Bargaining
3 s.h.

6L156 Personnel Management
3 s.h.

6L158 Curriculum Foundations
3 s.h.

6L159 Administration of Students with Special Needs
3 s.h.

6L255 Construction and Use of Evaluation Instruments
3 s.h.

6L261 School Organization Patterns
3 s.h.

6L270 Issues and Ethics in Counseling
2-3 s.h.

6L279 Improving Instruction in the Secondary School
3 s.h.

TD228 Administration of Educational Programs and Personnel
4 s.h.

TD265 Financial Management of Local School System
3 s.h.

TD267 Administrative Leadership Theory
4 s.h.

TD269 Legal Aspects of School Administration
2-3 s.h.

TD304 Seminar: Supervision and Administration
2-3 s.h.

Central Staff Administration

Required
EP117 Introduction to Statistical Methods
3 s.h.

TE263 Computer Applications in Education
2-3 s.h.

TD255 Financial Management of Local School Systems
3 s.h.

Electives
To be selected with the approval of the advisor.

Thesis
A student electing the M.A. program with thesis must take TD200 M.A. Thesis in Educational Administration and a final oral examination on the thesis.

Comprehensive Examinations
The student takes two three-hour examinations in areas of emphasis selected with the approval of his or her advisor. A student must be registered in the Graduate college at the time of the comprehensive examination.

Education Specialist
This program is designed to enable educational personnel to meet original certification requirements or to upgrade their background and skills to prepare them for positions as principals, superintendents, and other administrative and supervisory positions in educational agencies. A student wanting certification plans a program approved by an advisor to meet State of Iowa certification requirements.

Course Requirements
TD201 Administrative Organization and Personnel
4 s.h.

TD204 Principles and Economics of the Government and Financing of Public Education
4 s.h.

TD217 Administrative Leadership Theory
4 s.h.

TD229 Legal Aspects of School Administration
2-3 s.h.

TD350 Educational Specialist Research in Educational Administration
arr.

Program Emphasis
Students must complete the balance of the minimum required semester hours (electives, cognates and electives) in one of the following areas of emphasis, courses specifically listed in each area of specialization are the required courses.

Elementary School Administration
EP117 Introduction to Educational Measurement
3 s.h.

TE202 School Organization Patterns
3 s.h.

TE304 Seminar: Supervision and Administration
2-3 s.h.

Middle School/Junior High Administration
TD201 Introduction to Educational Measurement
3 s.h.
TO 304 Seminar: Supervision and Administration 2-3 s.h.
TO 319 Issues and Ethics in Counseling 2-3 s.h.
TP 156 Introduction to Educational Measurement 3 s.h.
Secondary School Administration TP 156 Introduction to Educational Measurement 3 s.h.
TO 296 Improving Instruction in the Secondary School 3 s.h.
TO 270 Issues and Ethics in Counseling 2-3 s.h.
General School Administration TO 265 Collective Bargaining in Education 3 s.h.
TO 292 Planning and Utilization of Educational Facilities 2 s.h.
TO 295 Financial Management of Local School Systems 3 s.h.
TO 375 Educational Administration Practice 3 s.h.
TP 143 Introduction to Statistical Methods 3 s.h.

Cognates
The student must complete a minimum of 6 semester hours in a cognate relationship to educational administration, subject to the advisor's approval.

Electives
The student chooses electives completing the 48-hour-hour requirement for the Ed.S. degree. In the program for general or central staff administration, the student may choose electives for specialization in such fields as school personnel, business affairs, instruction, finance, legal aspects, curriculum, and information systems.

Research
All candidates for the Ed.S. degree must complete a formal research paper (4 semester hours) dealing with a specific problem in school administration or instruction.

Comprehensive Examination
The comprehensive examination for the Ed.S. degree comprises one three-hour examination in educational administration and one three-hour examination in a specialized area either in educational administration or in a related or cognate field. Students must be registered in the Graduate College at the time of the examination. No Ph.D. comprehensive examinations will be held during summer session.

Doctor of Philosophy
The purpose of this program is to prepare students for positions at all levels of school administration, to conduct research in educational administration, and to teach at the college or university level. All prior preparation and experience is carefully analyzed and a sequence of courses determined to best equip individuals for their career objectives. As a general guideline, the student is expected to have a general background in professional education, educational administration, and an area of specialization at least one aspect of educational administration upon completion of the program.

Commonly selected specialization areas are: general administration, elementary school administration, secondary school administration, systems analysis and research, school finance, curriculum, legal aspects, theory, and school personnel. Students specializing in administration must complete a six-hour-hour cognate outside the College of Education. Proficiency in two research tool areas must be demonstrated. Course work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, specialization in at least one aspect of educational administration, cognate study, research methodology, and quantitative analysis.

Core Courses
Core courses are designed to develop competencies in the functional areas of school administration and to provide the necessary background for further study including research in specialized areas. The four core courses relate to educational program and personnel, politics and economics of the governance and financing of public education, administrative leadership theory, and administrative methodology. Comprehensive Examinations
Doctoral students must satisfactorily complete an extensive all-hour examination in the six common areas of educational administration and a three-hour examination based on the student's area of specialization that is approved by the student's advisor and the division chair. Students must have completed the doctoral core courses and/or be enrolled to complete the research component for the Graduate College at the time of the exam. No Ph.D. comprehensive examiners will be held during summer session.

Students pursuing doctoral programs in areas other than educational administration who wish to use some aspect of the educational administration program as an area of concentration for which they would request a comprehensive examination should consult with an advisor in the Division of Educational Administration early in their program of study. Any of the areas of specialization open to doctoral students in educational administration are open to other doctoral students provided they meet the necessary registration prerequisites for specific courses. The student should complete approximately 12 semester hours in one area of specialization before requiring a comprehensive examination. If the student decides to use a field within educational administration as atwed comprehensive area, the student should have completed approximately 18 semester hours of diversified course work in educational administration.

Research
Dissertation Prospects
The student must write a formal dissertation prospectus and submit it to a doctoral committee for approval. The student and advisor determine the time for completing the prospectus. Final evaluation of the prospectus is made in a meeting of the thesis committee. Dissertation prospectus meetings will be held during summer sessions.

Completion of the Dissertation and Final Examination
The student must accumulate from six to ten semester hours of dissertation research credit. The doctoral program culminates with final oral defense of the dissertation. The student usually takes the examination within a month of his or her anticipated time of graduation. The student must be registered at the University during the session in which he or she graduates.

Admission
Applicants must satisfy Graduate College requirements. Candidates are selected for admission through a faculty review process. Factors considered include recommendations, grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and other evidence of academic ability and professional promise.

Courses
TO 301 Foundations of School Administration 3 s.h. Introductory course: organization and administration of American public schools; principles and concepts of educational administration; legislative, professional and administrative factors relating to education; and school administration.
TO 305 Computer Applications in Education 3 s.h. Theory of educational data processing and computer languages, with applications to educational administration, management information systems, instruction and research.
TO 306 Educational System Analysis and Operations Research 3 s.h. Application of systems analysis and operations research methods to educational systems, planning, and design. Prerequisite: Statistical foundation for courses.
TO 305 Computer Programming in Educational Administration 3 s.h. The development of educational data processing models; the use of computers and computer-assisted instruction; the use of computer data systems and computer programming techniques with emphasis on course selection and management structures.
12:07 Seminar: Organizational Theory and Educational Administration 2.0 a.h. Students select work of particular theoretical or historical patterns and develop papers for presentation and interrogation. Prerequisites: 103:20, 103:70. Ph.D. candidacy, and written permission of instructor.

12:08 Seminar: Value Problems in the Administration of Large University Institutions 2.0 a.h. Philosophical and sociological views underlying the American system for administration of public education, various issues on basis of continuity and dissent in democratic society and democratic educational system. Prerequisites: 103:20, 103:70. Ph.D. candidacy, and written permission of instructor.

12:09 Seminar and Advanced Seminar in Community Education 2.0 a.h. Comprehensive investigation and experimental processes for understanding and evaluating the essential functions and performance of community education. Seminar and advanced projects, utilizing resources of administration, curriculum, community relations, and advanced programs. Prerequisites: 103:20, 103:70. Ph.D. candidacy, and written permission of instructor.

12:10 Supervision of Instruction 2.0 a.h. Principles and procedures in selecting effective teachers and staff; group analysis of teaching research findings. Emphasis on administration and supervisory techniques of the various instructional and administrative adaptations appropriate to chief student population.

12:11 Seminar for Education Executives 4.0 a.h. Intended for practicing school administrators; emphasis on problems which are organizational; specific problems determined by administrators attending.

12:12 Critical Role of Educational Administration 3.0 a.h. Individual and group investigation of contemporary problems and their solutions in educational administration. Prerequisites: 103:31 and consent of instructor.

12:13 Seminar: Case Studies in School Administration 3.0 a.h. Administrative problems and issues experienced in actual school situations; construction and discussion of cases using theoretical and design. Open to students who have studied one or more courses in administration or supervision. Prerequisites: 103:20 and instructor for 103:70.

12:14 Field Service Project in Educational Administration 5.0 a.h. Supervised field project designed to develop and analyze principles of administrative situations involving school organization. Prerequisites: 103:20 and instructor for 103:70.

12:15 A.M.A. Thesis in Educational Administration 3.0 a.h. Supervision of research, design, and writing of a general administrative problem. Prerequisites: 103:20 and instructor. Prerequisite consent of advisor.

12:16 Educational Specialist Research in Educational Administration 3.0 a.h. Supervision of design, research, and writing of a master's thesis in educational administration. Prerequisites: 103:20 and instructor. Prerequisite consent of advisor.

12:17 A.R.D. Thesis in Educational Administration 3.0 a.h. Supervision of research, design, and writing of a master's thesis. Level provided in an individual instructional program. Prerequisite consent of advisor.

Foundations, Postsecondary and Continuing Education

Chair: William E. Dought
Professor: Arthur C. Burman, Charles W. Case, Alan B. Beals, Robert J. Kehring, William E. Dought
Assistant professor: Robert E. Beiling
Asst. professor: John R. St. George, William E. Dought, Robert E. Engel, Scott F. McMullin, Ray A. Houston, Chester S. Ramana
Assistant professor: David B. Smith, Charles M. Major, Beilah LeBle, John A. Waterhouse
Adjunct assistant professor: Steve Anson

The programs in the division are designed to prepare administrators and personnel qualified as teachers and researchers in the fields of social foundations and postsecondary and continuing education. The academic programs in the division reflect this diversity of purpose.

Social Foundations of Education

Social Foundations of Education is an interdisciplinary program within the College of Education designed to enable students to better understand the influence of social, historical, and philosophical forces upon the formal educational enterprises. Major areas of specialization within the program are comparative international education, history of education, philosophy of education, and sociology of education.

General requirements for admission are: a minimum of 18 semester hours of work in social foundations, which should include at least two courses in each of the following area required of candidates. The remider of their required 32 semester hours of course work will be in an area of concentration appropriate to their career and academic goals. For example, a student interested in philosophy of education, would normally take these courses in the Department of Philosophy.

Doctor of Philosophy

The Ph.D. program requires a minimum of 54 semester hours. Students are required to take a maximum of 24 semester hours in social foundations, which must include at least 12 semester hours in the major area of specialization and a minimum of 6 semester hours from each of two additional areas. In addition, students must take at least 12 semester hours in related courses in the College of Education. None of these courses must be in one area of concentration, such as educational administration, educational psychology, measurement and evaluation, and post-secondary and continuing education.

Applicants are encouraged to obtain at least 40 hours of graduate work in the University, such as history, philosophy, science or sociology. These courses are individually planned by the student in consultation with the advisor and suggested from the appropriate department of departments.

Research tools are required and are selected from the following: experimental techniques of the individual candidate's research interests and program; two courses in a graduate level statistics sequence; philosophy of science and philosophy of social science; historiography; foreign language(s) proficiency exam.

In addition, all students are required to successfully complete 70:410 Seminar: alternative Research Strategies or 70:415 Research in Higher Education. Dissertation research is normally taken for 12 to 15 semester hours of credit.

Higher Education

Postsecondary and continuing education in the United States represents an extensive and complex network of phenomena. The academic programs in this division encompass that complexity. Degrees are offered at all levels and there is emphasis on both research and practice. Preparation for the Ph.D. degree is available. The teaching, research, and service activities of the faculty, and the work of the graduates of the several degree programs, illustrate that education beyond the high school level contributes in a variety of ways for all ages and in many different settings.

Undergraduate Major in Health Occupations Education

The health occupations education major has been designed to prepare teachers for employment at the community college level in preparatory health occupations education programs. In addition to basic skills and General Education Requirements of the College of Liberal Arts, students complete courses in professional education and in the health occupations education specialty field and/or supporting areas. Students applying to this program must hold current appropriate certification, licensure, or registry appropriate to the area of health occupations education in which they wish to teach, e.g., dental assisting, medical office assisting, or respiratory therapy. Health Occupations education major is planned upon this base, and provides work in professional education and the liberal studies components to help students develop the knowledge and skills necessary for a baccalaureate degree.
Applications to this program must satisfy professional Education Program (TEP) of the College of Education.

Program requirements:
- Professional Education Component
  - 7P35 Educational Psychology and Measurement 3 s.h.
  - 7W29 Additional Equipment for Instruction 1 s.h.
  - 7W51 Introduction to Microcomputing for Teachers 1 s.h.
  - 7H112 Teacher Education in Special Education 3 s.h.
  - 7H117 Foundations of Vocational Education 2 s.h.
  - 7H150 Seminar: Health Occupations Education 1-4 s.h.
  - 7H151 Community College Teaching Internship 12 s.h.
  - 7S190 Observation and Laboratory Practice in the Secondary School 12 s.h.
  - 7H193 Curriculum Development Application in Community College and Health Careers 3 s.h.
  - Appropriate course in social foundations 2-3 s.h.
  - Additional specialty course work in health occupations education 10 s.h.

Course work in the health occupations education specialty and supportive field should be planned carefully in consultation with the advisor.

Applicants may take workshops or courses offered by specific health colleges or choose electives such as development of audio visual aids or computerized in education in keeping with their educational goals. In addition, students must meet certification requirements stipulated in American government or U.S. history course and a human relations course.

Master of Arts Without Thesis

The purpose of the M.A. program is in higher education to prepare individuals for entry- and middle-level administrative, curriculum and instruction or continuing education positions in two- and four-year institutions, and is appropriate for positions such as assistant dean, business manager, development officer, assistant to the president, director, and division or program chair in selected areas.

Admission

Applications for admission must satisfy the requirements of the Graduate College. Candidates will be selected on the basis of grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and promise for professional growth.

Transcripts, GRE scores, and three letters of recommendation are required for consideration of regular admission. An interview is recommended.

Requirements

The M.A. program requires a minimum of 32 semester hours.

Two three-hour examinations, one in higher education and one in the student's area of concentration and specialization:

- Areas of concentration in which examinations may be written:
  - Administration, curriculum and instruction, continuing education.
  - Areas of concentration for related field examinees:
    - Administration, curriculum and instruction, continuing education.

Minimal requirements for eligibility to write a related field examination: students majoring in another field who want to complete a related field in higher education should consult with a higher education advisor early in their studies. Plans of study will be developed individually.

Education Specialist

The Ed.S. program provides advanced graduate education in higher education in the areas of administration, curriculum and instruction, community college administration, and continuing education for students not currently planning to continue for the doctorate. The specialist degree may also be awarded upon completion of a joint program in higher education and an academic field completing a minimum of 80 semester hours of graduate work or upon completion of a higher education sequence following a master's degree program.

Admission

Applicants for admission must satisfy the general requirements for admission to the Graduate College. Candidates will be selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth.

Transcripts, GRE scores, and three letters of recommendation are required for regular admission. An interview is recommended.

Major in Higher Education

Requirements for the Ed.S. major in higher education are:

- At least 18 semester hours in professional education and related fields including a structured internship determined in consultation with the advisor.
- At least 28 semester hours in the area of specialization to be determined in consultation with the advisor.
- 10 semester hours of electives to be approved by the advisor.

Research conducted under registration in 7H139 Educational Specialist Research in Higher Education for 4 semester hours.

Two three-hour comprehensive examinations:

- An examination to cover the field of higher education is given.
- An examination in at least one of the areas combinations within higher education, possibly reflecting an area of specialization within the concentration, followed by oral examination.

Major in Higher Education with Emphasis in College Teaching

Requirements for the Ed.S. major in higher education with emphasis in college teaching are:

- At least 21 semester hours in professional education and related fields appropriate for college teaching including a structured internship.
- 7S120 Intern Seminar 1-3 s.h.
- 7S139 College Teaching Internship 1-9 s.h.
- 7H172 Post-High School Staff Development Workshop 1-2 s.h.
- 7W51 Additional Equipment for Instruction 1 s.h.
- 7H151 Educational Psychology 3 s.h.
- At least 28 semester hours in the area of teaching specialization.

Ten semester hours of electives to be approved by one candidate's advisor. Research conducted under registration in 7H139 Educational Specialist Research in Higher Education for 4 semester hours.

Comprehensive Examinations:

An examination of the nature of postsecondary institutions and student characteristics, the professional responsibilities of a faculty member, and the candidate's ability to organize the subject matter into select appropriate teaching strategies. An examination in the candidate's teaching field, written and administered by faculty in that field, followed by oral examination.

Related Field

Students majoring in another field who want to complete a related field in higher education should consult with the higher education advisor early in their studies. Plans of study will be developed individually.

Teaching Internship

Program participants teach half-time for a 'full semester at cooperating community colleges under the supervision of an experienced faculty member in that community college, with field supervision from the University of Iowa. Interns participate as fully as possible in the academic life of the host community.
college, and usually gather data for their Ed.D. research project during the internship. Participants must be willing to travel to a community college and reside there for the one-semester program. Some interns are recommended at nearby community colleges, but preference will be given to those willing to travel for that experience.

Doctor of Philosophy

The Ph.D. program continues to attract persons who are likely to serve as administrators, special educators, and teachers in postsecondary institutions or related public or private agencies. The program offers four areas of concentration: general administration, curriculum and instruction (academic administration), community college, and continuing education (adult education). The program requires a minimum of 90 semester hours beyond the baccalaureate.

The candidate chooses one area of concentration and must earn 16 to 24 semester hours of credit in that area. Ordinarily the candidate chooses a related field of 9 to 12 semester hours or a minor (approximately 30 semester hours), which may be met by appropriate previous course work at the M.A. level that complements the area of concentration. The dissertation research (12 to 15 semester hours) is expected to deal with a specific problem in the area of concentration. These three components—concentration, minor and/or related fields, and dissertation research—constitute a major part of the typical doctoral program, and give the student the opportunity to specialize in one or more areas of interest.

While the current program places heavy emphasis on administration, both the theoretical and applied levels, the student is expected to take course work outside the division, using the flexibility of the program to develop expertise in areas that are important to them. The program has flexible organizational design and the system allows for comprehensive examinations for the doctoral degree. The general area of higher education can be divided into the concentration, minor and related fields, and dissertation.

Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates will be selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth.

Transcripts of the GRE Aptitude Test scores, and three letters of recommendation are required for regular admission. An interview is recommended and may be required.

Iowa Community College Foundation

To qualify for a professional certificate and authorization to teach in an arts and sciences field of an area community college in Iowa, the student 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. Preparation must include 6 semester hours of professional preparation appropriate for college teaching. Two semester hours of American history or government are required for certification in Iowa.

The following courses fulfill the requirement:

71311 The Community College 2-3 s.h.
71320 Internship Seminar 3 s.h.
71375 Post-High School Staff Development Workshop 1-2 s.h.
71316 Teaching of Adults 3 s.h.
71350 College Teaching Internship 3-5 s.h.

In addition, applicants for certification must have completed an approved human relations course for 3 semester hours of credit.

A master's degree in the student's teaching area is required for certification in arts and science areas.

Facilities

A resources and document collection relating to community colleges is available for students doing research or seeking employment information.

Courses

Social Foundations and Curriculum Education

713:27 Analysis For Decision Making 3 s.h.
Basic principles and methods of analysis drawn from policy analysis and decision science. Application to the administrative, organizational, and public policy decision making and implementation of educational requirements.

713:01 Education, Politics, and Culture of Musical Southeast Asia 3 s.h.
Practitioners different approaches to educational and social change in Southeast Asia in the 20th century. Examines selected educational achievements and their influence on social and political change.

713:08 History of American Education 3 s.h.
Survey of American educational history with focus on the changing historical interpretations of religious, social, and educational movements. Contemporary issues and trends are evaluated.

713:00 Special Education 3 s.h.
Examination of biological development of special education educational institutions and policies. Adapting and implementing educational laws. The role of special education in the development of educational policy.

713:04 Education in the Third World 2-3 s.h.
Educational implications of various development issues. The role of the media, the changing social, economic, and political life, and the role of education in the development of the Third World.

713:06 History of Education in China 3 s.h.
Examination of the educational philosophy of influential individuals in the history of education and the education of their ideas in terms of historical movements in the United States.

713:17 Philosophy of Education 2, 3 s.h.
Introduction to the philosophy of education. Historical and philosophical foundations of education and their influence on educational ideas and practices. Differences among the various philosophical ideas and conflicts that have shaped the educational arena.

713:16 American Institutions and Politics of Education 2 s.h.
Introduction to the political setting of education at various levels, internal, external, and local, and to the political influence of the institution in the United States and its political context.

713:16 Educational Psychology 2 s.h.
An examination of the psychology of learning, attitude, and perception, and the major psychological and educational influences in the United States context.

713:16 Educational Sociology 2 s.h.
Introduction to the psychosocial perspective of the role of education in social systems. The impact of formal education on social mobility, social solidarity, and social alienation in the United States and its political context.

713:16 Career Development 2 s.h.
An examination of the psychology of learning, attitude, and perception, and the major psychological and educational influences in the United States context.

713:16 Educational Technology 2 s.h.
The role of technology in educational and professional settings. The role of technology in educational and professional settings.

713:16 Educational Research 2 s.h.
A continuation of the philosophy of learning, attitude, and perception, and the major psychological and educational influences in the United States context.

713:16 Educational Technology 2 s.h.
The role of technology in educational and professional settings. The role of technology in educational and professional settings.

713:16 Educational Technology 2 s.h.
The role of technology in educational and professional settings. The role of technology in educational and professional settings.

713:16 Educational Technology 2 s.h.
The role of technology in educational and professional settings. The role of technology in educational and professional settings.
Psychological and Quantitative Foundations

Chad: Lowell A. Scher
Professor: Sarah C. Bower, T. Anne Cleary, Paul Decker, John E. Gershenson, Leonard S. Feld, Robert A. Fossey, Albert N. Henn incorp., Howard T. Kwon, Lowell A. Scher, Bill Carl Seabold, Lawrence Skowronek, Gerald Swets
Professors emeriti: William C. Collins, Stephen Muntz, James B. Smeral
Associate professors: Betsy Altman, Barry D. Bostrom, Charles Clark, Carol Davis, Richard Elekis, Craig L. Garde, Anna E. Heed, Remus-Rita L. Lagan, David Lehman, William O'Glesby, Cathy Ritter
Associate professor emeritus: Lida C. Crocker
Assistant professor: David Frankel, E. James Mays, Ming-Wai Wong
Assistant professors: Stephen Akin, Timothy Aciero, Stephen Davidson, David A. Russell, Kathleen Teiziner, Susan Weston, Donald Yeates
Adjunct associate professors: Robert L. Brenner, Cynthia Davis, Richard Ferguson, Philip Latteski, Michael R. Lewis
Adjunct assistant professor emeritus: Calvin Steiger

The division offers programs in five areas: educational psychology, counseling psychology, reading disabilities, educational measurement and statistics, and instructional design and technology. The general goals of these programs are to help students acquire the knowledge and skills necessary for effective functioning in settings that require the application of psychological and educational principles, and to extend knowledge and understanding of the teaching/learning process as it occurs in a variety of settings. Although the major emphases in the N.A. and E.D. programs are on the first three goals and that in the Ph.D. program on the second, there is some emphasis on both goals in all programs.

Undergraduate Course Work

The division offers an undergraduate minor in the combined areas of educational psychology, measurement, and statistical analysis.

The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A division advisor selected by the student will aid in choosing courses totaling 18 or more semester hours must be in 100-level courses. This minor does not lead to certification as a public school teacher.

One of the General Education Requirements for graduation from the College of Liberal Arts is successful completion of a course developed to develop skills in quantitative or formal reasoning (see the "College of Liberal Arts" section in the Catalog). TP-25 Elementary Statistics and Inference may be used to satisfy this requirement.

Graduate Programs

Master of Arts

Educational Psychology

This program provides an overview of educational psychology as an area of scholarly inquiry. It includes course work in human development, cognition/learning, motivation, socialization/personality, educational measurement, and research methods. The program does not prepare the student for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological principles on which education builds. Students may take this degree with or without thesis. The degree without thesis requires a minimum of 32 semester hours of course work. The degree with thesis requires a minimum of 38 semester hours of course work plus 2-4 semester hours of thesis credit. Both programs require TP-143 Introduction to Statistical Methods or the equivalent. Students who intend to apply for admission to the Ph.D. program must take the N.A. degree with thesis. Students plan the master's program in consultation with their advisors, choosing courses from the following four-hour areas: human development, cognition/learning, motivation, and socialization/personality. Students must take at least one course in each of these areas. The faculty encourages degree candidates to enroll in at least two courses outside the division.

The program consists of six hours in comprehensive examinations, consisting of either two or three-hour or two-hour examinations. The three-hour exam calls for the minimum of two courses in each area tested, but three courses are recommended. The two-hour exam calls for a minimum of two courses in each area tested. The comprehensive exam is planned jointly by the student and advisor and must be approved by the division.

The admission requirements are the same as those established by the Graduate College. Treatment experience is desirable but not required. The faculty reviews applications as they are received.

Educational Measurement and Statistics

A Master of Arts degree in this field prepares students for positions that require a basic knowledge of educational testing, program evaluation, and data analysis. Such positions occur in research centers, testing laboratories, the federal government, and state educational agencies. The program is also appropriate for students who seek to broaden their knowledge of measurement and research methodology for personal development.

The degree may be taken without thesis (32 semester hours minimum) or with thesis (minimum of 28 semester hours of course work plus two to four semester hours of thesis credit). All students must complete a core of courses totaling 18 to 20 semester hours. Included in this core is a graduate-level survey course in educational psychology, elementary and intermediate courses in classical statistical methods, an introduction to Bayesian statistical methods, a course in educational research methodology, and courses in the development and use of evaluation instruments. The elective credits, totaling 10 to 12 semester hours, must include at least one course in elementary, secondary, or postsecondary education. The remaining electives may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer science, and mathematics, statistics, and counseling.

The final comprehensive examinations typically include three-hour examinations in educational measurement and in applied statistics. In the approval of the M.A. committee, the student may take two-hour examinations in these fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations assume a minimum of three courses in the area: two-hour examinations assume a minimum of two courses in the area.

Grade-point-average requirements for admission to the program are the same as those established by the Graduate College. Normally, if the candidate's score for the quantitative, verbal, or analytical section of the Graduate Record Exam (GRE) General Test is less than 500, the applicant will not be admitted. However, if there is offsetting evidence of superior ability, the faculty may approve acceptance on a conditional basis. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable. The faculty reviews applications as they are received.
Reading Disability

The Master of Arts program provides training in the diagnosis of reading disabilities and in the prescriptive teaching of reading. Graduates of the nonthesis program qualify for certification as reading clinicians. They typically return to classroom teaching or take positions as reading clinicians, supplementary reading teachers, or reading consultants. Graduates of the thesis program typically expect to enter doctoral programs in the field of reading.

The nonthesis program requires a minimum of 30 semester hours including the following core courses:

TP.170 Introduction to Psychology of Reading 3 s.h.
TP.173 Diagnostic and Prescriptive Approaches to Reading Instruction K-12 4 s.h.
TP.150 Introduction to Educational Measurement 3 s.h.
TQ.261 Individual Intelligence Testing 3-4 s.h.

Students must also complete at least 4 semester hours of practicum courses chosen with the advisor's approval from the following:

TE.171 Reading Clinic Teaching Techniques 2-3 s.h.
TE.172 Reading Clinic Teaching Practicum 2-3 s.h.
TE.271 Advanced Reading Clinic Techniques 3-4 s.h.
TE.272 Advanced Reading Clinic Practicum 2-3 s.h.
TE.365 Reading Clinic Supervision arr.
BP.270 Topics in a Reading Laboratory 3 s.h.

All students must take a minimum of 14 semester hours in elective courses, chosen with the advisor's approval from the fields of health psychology and audiometry, educational psychology, special education, and elementary or secondary education.

The thesis program requires a minimum of 30 semester hours including the following core courses or equivalents:

TP.143 Introduction to Statistical Methods 3 s.h.
TP.143 Intermediate Statistical Methods 3 s.h.
TP.270 Advanced Psychology of Reading 4 s.h.
TP.273 Reading Clinic: Diagnostic Practicum 2-3 s.h.
IP.100 Introduction to Logistics 3 s.h.
TP.383 M.A. Thesis in Educational Psychology, Measurement, or Statistics 2-4 s.h.

Elective courses are chosen from the same fields enumerated for the nonthesis program.

For both the thesis and nonthesis programs, the comprehensive examinations typically include a three-hour examination in reading disability and two 90-minute examinations in related fields. With the advisor's approval, the nonthesis student may substitute a comprehensive project for one or more of the written examinations. The project will involve the investigation of a problem comparable to those encountered by a reading clinician or consultant in the field.

The grade-point-average requirement for admission to the program is the same as that established by the Graduate College. When the applicant's total score as the verbal and quantitative parts of the Graduate Record Examination (GRE) General Test is below 1000, and no evidence of superior ability is available, the applicant will be rejected or admitted only on a conditional basis. Applicants must have two years of approved teaching experience. The faculty reviews applications as they are received.

Instructional Design and Technology

The Master of Arts in Instructional Design and Technology is a 35 semester-hour program designed to provide basic knowledge and skills required to work in settings including schools, business and industry, hospitals, government, and private consulting agencies. It may be taken either with or without thesis.

Regular admission requires a minimum grade-point average of 2.5 on all previous course work. Students with a grade-point average of less than 2.5 may be admitted conditionally. Regardless of admission status, all students are expected to attain a grade-point average of at least 3.0 on the first 12 semester hours of course work taken after admission.

The degree requires the following course work or approved equivalents:

7W.103 Selection and Use of Media for Instruction 3 s.h.
7W.105 Design and Production of Media for Instruction 3 s.h.
TP.107 Psychological Bases of Instructional Design 3 s.h.
7W.120 Introduction to Instructional Design and Technology 3 s.h.
7P.150 Introduction to Educational Measurement 3 s.h.
7W.220 Advanced Instructional Design and Technology 3 s.h.
7W.222 Instructional Strategies 3 s.h.

If the degree is done with thesis, the student is also required to take TP.145 Introduction to Statistical Methods or 7W.261 Research Methods in Instructional Design and Technology 3 s.h. In addition, all student must complete 9 semester hours of prescribed course work in one of the following areas:

Classroom Instruction

Computer applications
Health sciences education
Instructional development

Media center administration
Media production
School media (Endorsement 39)
Training and human resource development
Visual studies

If a student has not had previous experience in instructional design, he or she will complete a pre-proficiency course, and all students are required to do a final project.

Completion of the program also requires a six-hour set of final comprehensive examinations. These may be divided into either two- or three-hour parts distributed as follows:

General instructional design 2-3 hours
Area of emphasis 2-3 hours
Other 0-2 hours

Education Specialist in Instructional Design and Technology

The Education Specialist in Instructional Design and Technology is a 60 semester-hour program designed to provide specialized training beyond that provided by the M.A. program. The Ed.S. is ordinarily considered to be a terminal degree.

Admission to the Ed.S. program is the same as to the M.A. except that a minimum grade-point average of 3.0 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ed.S. program must submit a letter to the division chair at the time of filing completed admission forms with the Graduate University Admissions Office. The letter should describe the applicant's interests in the field of study and the program at The University of Iowa, areas of desired study, tentative future plans, and any additional information which may be helpful in the admissions process.

The following course work or approved equivalents is required for the degree:

M.A. core, without statistics, plus:

TP.143 Introduction to Statistical Methods 3 s.h.
7W.261 Research Methods in Instructional Design and Technology 3 s.h.
7W.289 Survey of Research in Instructional Design and Technology 3 s.h.

Every student must also complete 15 semester hours of prescribed course work in one of the following areas:

Classroom Instruction

Computer applications
Health sciences education
Instructional development
Media center administration
Doctor of Philosophy

Educational Psychology

This doctoral program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practices. Such careers include: professorship at the university and college level; research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools; and a concentration in the area of reading disabilities prepares students for careers as reading consultants, directors of reading clinics, and professors who train diagnostic and prescriptive reading specialists. The program requires a minimum of 72 semester hours beyond the bachelor's degree and encompasses four substantive areas: human development, learning/teaching/evaluation, motivation, and social/political/community. Students must have at least two courses in each of these areas. A minimum of 24 semester hours must be taken at the 500 and 600-level course in at least two areas. The student must also demonstrate substantial competence in at least one of these substantive areas. A minimum demonstration of competence requires the successful completion of a three-hour comprehensive examination given on no less than six semester hours at the 600 level. Additional requirements include the following: 71220 Research Methodology, a minimum of 6 semester hours of 600-level course work in statistics and one graduate-level course in measurement; and 10 semester hours of Ph.D. thesis credit. Alterations in these requirements for an individual student can be made with the approval of a three-member committee comprised of faculty members in the educational psychology program. Students are encouraged to take course work outside of education in their area of interest. Candidates who took the M.A. degree without thesis must undertake a project in lieu of the thesis. This project must be approved by three members of the educational psychology faculty. The candidate's program is planned jointly by the student and the advisor. The record of every student admitted to the program is reviewed near the end of the second semester of residence. The division faculty considers course grades, evidence of critical and analytical skills, development during the year, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied are terminated from the program.

After candidate have completed the major portion of their course work, they must write comprehensive examinations. Typically, these examinations consist of a total of nine hours of written examinations in two or more areas. One of these areas must be chosen from the following: human development, research/teaching, motivation, or social/psychological/community. With the approval of the examining committee, the candidate may undertake a project in lieu of one of these examinations.

An applicant for admission to the program must hold an M.A. degree from or be an M.A.-degree candidate in good standing at an accredited institution. Completion of the M.A. program must occur before the student can take Ph.D. comprehensive exams. The graduate grade-point average requirement for admission is the same as that established by the Graduate College. Normally, if the applicant's scores on the verbal and quantitative sections of the Graduate Record Examination (GRE) Critical Test total less than 1000, he or she will not be accepted. However, the candidate may be admitted conditionally on the basis of other evidence such as high grade-point average in graduate course work, adequate preparation, and highly supportive recommendations. Applications are accepted as received.

Counseling Psychology

The counseling psychology program at the University of Iowa is a doctoral program that was approved for graduate study by the American Psychological Association in the spring of 1968. No master's degree is offered through the program. The program's primary goal is to train students to achieve competence in providing a wide range of psychological services and in conducting research on a variety of psychological problems. To achieve this goal, the curriculum has been developed to integrate psychological theory, professional development, and research training. The program strives to produce psychologists who will promote psychological health through a profession and a science and who apply acquired skills to the advancement of the human condition. Since the profession of psychology is constantly changing to meet new needs, Iowa faculty and students represent a variety of backgrounds and interests. The program is designed to encourage innovation in a wide range of human services as well as the provision of traditional counseling approaches. Upon graduation, students obtain positions as faculty members, health service providers, private practitioners, counseling center staff members, and consultants.

Applicants for admission to the program should have an undergraduate major or minor in psychology or a substantial undergraduate psychology course work, or a major in a related field; a grade-point average of 3.5 or above; Graduate Record Exam (GRE) Aptitude Test scores of 1200; a personal statement of interest in the program; and three letters of recommendation. All application materials must be received by February 1; students are encouraged to consult their applications. Very few students are admitted to the doctoral program each year.

Educational Measurement and/or Statistics

The purpose of this doctoral program is to prepare students for senior professional positions in the fields of educational measurement, program evaluation, and statistical methods. Such positions generally occur in colleges and universities, state departments of education, large public and private school systems, testing agencies and research centers. Every student must complete the following core courses or their equivalents:

7P110 Educational Psychology 3 a.h.
7P213 Intermediate Statistics 4 a.h.
7P146 Bayesian Statistics I 4 a.h.
7P125 Educational Research Methodology 3 a.h.
7P255 Construction and Use of Evaluation Instruments 3 a.h.
7P457 Statistical Education and Evaluation 3 a.h.
7P250 Theory and Technique in Educational Measurement 3 a.h.
7P245 Correlation and Regression 3 a.h.
7P265 Psychological Measurement 4 a.h.
7P285 Program Evaluation 3 a.h.

The faculty also suggests additional course work in areas appropriate to the student's interests and vocational objectives. These courses typically include additional work in educational measurement, applied statistical methods, scaling of measures, and educational psychology. Students who concentrate in the area of statistics, with the intention of teaching at the college level, are required to take course work 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 processing equipment. Candidates who complete the program without completing an M.A. thesis must complete a substitute project approved by three members of the division faculty. The project must be completed before the writing of the Ph.D. comprehensive
psychology. One of the comprehensive examinations must be in the area of reading disability. The admission requirements are the same as those for the Ph.D. program in educational psychology.

Instructional Design and Technology

The Ph.D. in instructional design and technology is a 90-semester-hour program designed to provide a broad background for students interested in teaching, research, and leadership positions in the field. There is a relatively heavy emphasis on helping students acquire the knowledge and skills necessary to expand understanding of training and instruction and those factors that influence them. The admission requirements are the same as for the Ed.S. degree except that a minimum grade-point average of 3.0 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ph.D. program must submit a letter to the division chair at the time of filing completed admissions forms with the University Graduate Admission Office. The letter should describe the applicant's interests in the field of study and the program at The University of Iowa, areas of desired study, tentative future plans, and any additional information that may be helpful in the admissions process.

It is also recommended that applicants for the Ph.D. degree arrange a personal interview with program faculty members after submitting admissions forms. All students in the Ph.D. program must complete the following course work or approved equivalent:

- M.A. core without statistics, plus:
  721/722 Introduction to Statistical Methods
  723/724 Selected Applications of Statistical Methods

Additional Research Methods in Instructional Design and Technology

Six semester hours of research related coursework.

In addition, the program requires completion of 15 semester hours of supervised research coursework in one of the following areas:

- Computer applications
- Health science education
- Instructional development
- Teaching and human resource development

Visual studies

All students are also required to complete 9 semester hours in one area outside the College of Education.

Below are comprehensive each student must submit a formal paper that reflects his or her ability to organize and write about a topic at the level that will be expected for the dissertation. This paper may be submitted and evaluated by three members of the faculty in the instructional design and technology program.

Financial Aid

The division normally employs a number of graduate students as teaching, research, and production assistants. These are typically half-time academic year appointments, and holders are permitted to carry a study and/or research load of up to 12 semester hours per semester. Candidates should address inquiries to the chair of the division.

Other types of graduate assistantships are supported by the Iowa Testing Programs. Duties are varied, including such responsibilities as test development, test norming, and counseling with teachers in the field whose pupils have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Programs that are not specific to the University of Iowa. Application forms should be directed to the program director.

Courses

Eduational Psychology, Measurement, and Statistics

- 721/722 Introduction to Statistical Methods
- 723/724 Selected Applications of Statistical Methods

Additional Research Methods in Instructional Design and Technology

Six semester hours of research related coursework.

In addition, the program requires completion of 15 semester hours of supervised research coursework in one of the following areas:

- Computer applications
- Health science education
- Instructional development
- Teaching and human resource development

Visual studies

All students are also required to complete 9 semester hours in one area outside the College of Education.

Below are comprehensive each student must submit a formal paper that reflects his or her ability to organize and write about a topic at the level that will be expected for the dissertation. This paper may be submitted and evaluated by three members of the faculty in the instructional design and technology program.

Financial Aid

The division normally employs a number of graduate students as teaching, research, and production assistants. These are typically half-time academic year appointments, and holders are permitted to carry a study and/or research load of up to 12 semester hours per semester. Candidates should address inquiries to the chair of the division.

Other types of graduate assistantships are supported by the Iowa Testing Programs. Duties are varied, including such responsibilities as test development, test norming, and counseling with teachers in the field whose pupils have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Programs that are not specific to the University of Iowa. Application forms should be directed to the program director.

Courses
Admission

Prior to taking most pre-decisional education courses (courses numbered 25, 35, 37-38) undergraduate students must be admitted to the Teacher Education Program (TEP). Application for admission must be filed in the College of Liberal Arts Office of Academic Programs. Teachers must be admitted to the College of Liberal Arts Office of Academic Programs. In order to be eligible for admission, students must have completed a minimum of 28 semester hours of course work with a minimum grade point average of 2.3. Admission decisions will also be based on grade-point average in the major, and other criteria relevant to teaching success. If at any time after admission the grade-point average falls below 2.3, the student will lose eligibility for the TEP. Students should consult with their subject matter field, or the Division of Secondary Education Office, N309 Lindquist Center for additional information on admission criteria. Graduate students who have been admitted to the Graduate College for “certification only” do not have to apply for admission to the Teacher Education Program. Their admission to “certification only” automatically implies admission to the TEP.

Upon admission to the TEP, students will be assigned an education advisor.

Admission to Student Teaching

While admission to the TEP, which permits students to take certain College of Education courses, requires a 2.3 cumulative grade-point average, for most majors higher criteria must be met for admission to student teaching. Students should consult their secondary education advisor or the College of Education office for the student teaching admission requirements for their certification program.

Graduate Programs

The Division of Secondary Education offers, or jointly administers with departments in the College of Liberal Arts, advanced degree programs in the following fields of educational interest: art education, curriculum and supervision, developmental reading, English language education, foreign language education, home economics education, mathematics education, music education, physical education, science education, and social studies education. In some fields, only master’s level programs are offered, whereas in other fields, educational specialist and Ph.D. degree programs are also offered. All degree offered are listed below, grouped by program area.

Art Education

Master of Arts

The master’s degree program is administered by the College of Art and Art History with the cooperation of the College of Education. Students must make application for admission to the School of Art and Art History.

The purpose of the program is to prepare highly qualified teachers of art for elementary and secondary schools and community colleges. The strong academic emphasis of this program is to assist teachers who are themselves creative artists to become highly literate in the history and language of art.

Admission

Applicants must have completed the equivalent of the minimum course work in art required for the B.A. or B.F.A. degree in art from The University of Iowa and its certificate to teach art. Applications must be accompanied by a representative portfolio of the candidate's work consisting of eight slide reproductions of art work and one example of written work. The written work must be a paper previously written for a course or it may be an original piece. All art works must be in original media. Students should be admitted to the College of Education. 13 North Hall.

In the case of course work deficiencies, the student must register for pertinent courses. One year of successful teaching experience in an elementary or secondary school is required prior to admission or the completion of the doctoral program.

Degree Requirements

At least 60 semester hours of graduate work beyond the M.A., planned with the student's advisor, including at least 15 semester hours in the College of Art and Art History. 15 semester hours in art
education seminars, 15 semester hours in a related area (e.g. aesthetics, anthropology, higher education, early childhood education, psychology, sociology), and 15 semester hours in thesis and tool courses, 76:306 or 76:306 Introduction to Research in Art Education.

Comprehensive examinations, both oral and written. The written examination consists of a problem related to the research project assigned by the examining committee to be completed within 14 days after which an oral examination on the project is held. The written portion of the examination is not intended to relate directly to the dissertation proposal; satisfactory completion of a written dissertation for at least 12 semester hours which constitutes a contribution to scholarship; the student is expected to prepare a dissertation proposal and defend it before the dissertation committee; an oral examination on the dissertation is the Ph.D. final examination.

Communication Studies (Education)

Master of Arts

The purpose of the program is to prepare teachers and supervisors of speech communication for secondary and post-secondary positions.

Admission

Candidates must have a grade-point average of 2.75. Candidates without a prior academic background in speech communication may find it necessary to take additional courses beyond the minimum requirement. Application should be made to the Department of Communication Studies, Communication Studies Building.

Degree Requirements

A minimum of 30 semester hours of approved graduate courses, at least 24 of them at The University of Iowa.

Two graduate courses in communication education.

Two graduate courses in a second division of the department.

Introduction to Research, 76:300.

A graduate seminar involving significant research; and

Other courses recommended by advisor and department.

Successful completion of a paper or project involving substantial scholarly investigation and writing, usually done in a seminar, or done independently under the direction of an advisor. This project or paper must be circulated to the committee with the comprehensive examination.

A comprehensive examination consisting of three two-hour segments to be defined and limited by the student and an advisor when the plan of study is prepared.

Curriculum and Supervision

Master of Arts

The purpose of the program is to prepare teachers and administrators for positions as consultants, directors, and coordinators in secondary school curriculum development.

Admission

Students must meet the general requirements of the Graduate College. Teaching experience is desirable.

Degree Requirements

Common Core (19-26 a.h.):

76:196 Curriculum Foundations 2-3 a.h.

7F:117 Philosophies of Education (or its equivalent) 2 a.h.

7F:252 Educational Measurement and Evaluation 3 a.h.

7F:130 Introduction to Educational Measurement

75:281 Junior High School and Middle School Curriculum 3 a.h.

75:291 Secondary School Curriculum 3 a.h.

75:300 Design and Organization of Curriculum 3 a.h.

Research tool—selected in consultation with the advisor, typically

7F:143 Introduction to Statistical Methods 2 a.h.

Copulas (4-6 a.h.)—in a subject field such as English,

Electives—selected in consultation with advisor to complete a total of 30-32 semester hours.

Thesis—for students electing a thesis program,

75:393 Master’s Degree Thesis 2-4 a.h.

Two three-hour comprehensive examinations—one in curriculum and one in a related field in education or in a cognate field or two two-hour examinations.

Doctor of Philosophy

The purpose of the program is to prepare 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 certificate, and have at least two years of teaching experience. Applicants must be approved for admission by a faculty review committee.

Degree Requirements

Common Core (36-42 a.h.):

76:196 Curriculum Foundations 2-3 a.h.

75:281 Junior High School and Middle School Curriculum 3 a.h.

75:291 Secondary School Curriculum 3 a.h.

75:300 Design and Organization of Curriculum 3 a.h.

75:301 Problems of Curriculum Planning 3 a.h.

At least two advanced supervision courses in secondary or elementary school subject fields 6 a.h.

7F:257 Educational Measurement and Evaluation 3 a.h.

7F:255 Construction and Use of Evaluation Instruments 3 a.h.

7F:150 Introduction to Educational Measurement 3 a.h.

7F:390 Problems in Supervision 2 a.h.

7F:293 Individual Instruction in Secondary Education (Practicum) 2-3 a.h.

A minimum of two research tools, typically statistics, data processing, research design, or historical methods 9-12 a.h.

Electives (32-35 a.h. to be chosen in consultation with advisor.)

Recommended electives include:

7F:130 Educational Sociology 2 a.h.

7F:117 Philosophies of Education 2 a.h.

7F:131 Educational Psychology 3 a.h.

7F:170 Introduction to Psychology of Reading 3 a.h.

7F:297 Administrative Leadership Theory 4 a.h.

7F:190 Introduction to Instructional Design and Technology 3 a.h.

7F:130 Exceptional Persons 3 a.h.

All doctoral candidates are required to complete at least 8 semester hours of cognate work in such areas as sociology, psychology, or political science.


Candidates take three three-hour comprehensive examinations in secondary school curriculum and two related fields in education or in a cognate field.

Developmental Reading

Master of Arts

This program is designed to prepare graduate students for positions as reading
English Education

Master of Arts

The purpose of the program is to prepare supervisors of English, department chairs, and curriculum specialists for secondary schools, and to prepare teachers to teach in specialized areas. Application should be made to the College of Education.

Admission

Students must meet the general requirements of the Graduate College, hold a secondary school teaching certificate, and have acquired a minimum of 30 semester hours in English. Preferred applicants will have a grade-point average of 3.0 or above and a verbal score above the fifth percentile on the Graduate Record Examination (GRE). Aptitude Test. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

Students specialize in English education and one or two other areas. The other areas may be literature, composition, secondary school teaching, curriculum, reading, or creative writing. Students are required to complete six semester hours in language development, visual and auditory literacy, literature of children and adolescents. An advisor and the student will plan the program of study. Nine semester hours must be earned in courses numbered 200 or above. The student will take a comprehensive examination in English education and in his/her chosen areas.

Master of Arts in Teaching

The M.A.T. degree program is designed for students with an undergraduate degree in English who have had few or no professional education courses. Successful completion of the program enables the student to receive certification as a secondary school teacher of English.

Admission

Applicants must have a bachelor's degree in English and a minimum undergraduate grade-point average of 3.0. Since this is a certificature program, candidates cannot have qualified for certification previously. They are expected to have no more than 6 semester hours of course work in professional education courses prior to admission.

Degree Requirements

A minimum of 45 semester hours; At least 18 semester hours of graduate courses offered by the Department of English, planned with the advisor to supplement the undergraduate major; and the following professional education courses:

- 78:131 Educational Psychology 3 s.h.
- 78:107 History of Western Education 3 s.h.
- 78:117 Philosophies of Education 2-3 s.h.
- 78:100 Individual Projects in Laboratory Practice 1-3 s.h.
- 78:110 Human Relations for the Classroom Teacher 3 s.h.
- 78:104 Methods in High School Reading 3 s.h.
- 78:105 Developing Reading Skills in the Secondary School 3 s.h.
- 78:115 Basic competency in microcomputer 3 s.h.
- 78:115 Methods in English 3 s.h.
- 78:187 Seminar: Curriculum and Student Teaching 2 s.h.
- 78:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
- A two-part comprehensive examination is required, one part covering methods, materials, and curriculum for high school English, and the second part covering onehalf the comprehensive examinations administered to Master of Arts (Literary Studies) candidates in the Department of English.

Doctor of Philosophy

The purpose of the program is to prepare teacher educators in English, specialists in literature for young people, specialists in reading at secondary and junior college levels, and coordinators/supervisors of language arts programs.

Admission

Students must meet the requirements of the Graduate College for admission to a doctoral program. In addition they must have a secondary school teaching certificate, grade-point average of 3.0 and Graduate Record Examination (GRE) aptitude test scores above the fifth percentile on verbal test (600 and above), and two years successful teaching experience. Students admitted to the program are expected to provide evidence of the successful completion of a substantial research paper for a course included in the first 15 residual hours. Students must maintain a 3.0 grade-point average while they are in the program. Their candidacy is revocable annually.

Degree Requirements

A minimum of 72 semester hours is required. Area of Specialization: Teaching of English (15-16 s.h.), including four of the following courses:

- 78:106 Supervision of Elementary School Language Arts 3 s.h.
- 78:308 Seminar: Research and Current Issues 3 s.h.

78:315 M A, Seminar: English Education 3 s.h.
78:415 Ph D. Seminar: English Education (required for two or more registrations) 2-4 s.h.

Cognates and electives (54-63 s.h.): May include reading, school curriculum, literacy for young people, literature of a particular period or genre, educational psychology, special education, educational media, rhetoric and composition, linguistics, literary criticism, educational measurement, speech and dramatic arts. Students and advisor will select two areas of specialization in addition to the teaching of English. Areas of specialization will typically require a minimum of 15 semester hours of work in an area.

Faculty in a research tool agreed upon by the student and advisor that will help the student achieve pedagogical objectives. Comprehensive examinations in three areas: the teaching of English, a cognate area, and an elective area. The minimum requirements for eligibility to write cognate or elective area examinations varies, the general requirement is three courses in an area.

Dissertation (typically 12 semester hours).

Exercise Science and Physical Education

Master of Arts

See "Exercise Science and Physical Education" in the "College of Liberal Arts" section of the Catalog.

Doctor of Philosophy

The Ph.D. program in Physical Education program is also described in "Exercise Science and Physical Education" in the "College of Liberal Arts" section of the Catalog.

Foreign Language Education

Master of Arts in Teaching

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 certification.

Admission

A bachelor's degree with a major in a foreign language and a 3.0 undergraduate grade-point average is required.

Degree Requirements

At least 18 semester hours of philology courses in a foreign language department and the following professional education courses:

78:920 Introduction to Teaching 3 s.h.
78:308 Seminar: Research and Current Issues 3 s.h.
78:131 Educational Psychology 3 s.h.
TF 107 History of Western Education
2 s.h.
TF 117Philosophies of Education
2 s.h.
13 123 Basic Program for Foreign Language Computer-Assisted Instruction (same as 9 136)
2 s.h.
35 117
35 116 Methods: Foreign Language
3 s.h.
35 150-156 Observation in Laboratory Practice in the Secondary School
12 s.h.
35 183 Seminars: Curriculum and Student Teaching
1 s.h.
35 193 Human Relations for the Classroom Teacher
3 s.h.

A comprehensive examination covering the candidate's knowledge of and proficiency in one language, literary or cultural analysis, and of foreign language education.

Home Economics Education

Master of Arts
The M.A. program is administered by the Department of Home Economics and is described in the "College of Liberal Arts" section of the Catalog.

Master of Arts in Teaching
Admission to the M.A.T. program is through the College of Education; however, the program requirements are given under "Home Economics" in the "College of Liberal Arts" section of the Catalog.

Mathematics Education

Master of Arts
The purpose of the program is to provide students interested in teaching mathematics at the secondary level. Admission

Candidates must meet the admission requirements of the Graduate College and, except in unusual cases, hold a professional certificate to teach secondary school mathematics.

Degree Requirements
A minimum of 10 semester hours of course work in mathematics approved by the student's advisor;
A minimum of four courses in mathematics education, which must include:

70 205 Current Issues in Mathematics Education
2-3 s.h.
The remaining three courses are to be selected from the following:
70 231 Teaching Computer Programming in Secondary School Mathematics
2 s.h.
70 236 The Teaching of Geometry
2-3 s.h.
70 237 Teaching Mathematics in Middle School and Junior High School
2-3 s.h.
70 238 Teaching the Low Achiever in Mathematics
2-3 s.h.
70 239 Teaching of Algebra
2-3 s.h.
75 301 Seminar: Mathematics Education
2-3 s.h.

Two courses selected from a cognate area in education. Suggested areas are educational psychology, educational statistics and measurement, elementary mathematics education, history or philosophy of education, instructional design and technology, counselor education, secondary school curriculum, secondary school administration, and special education.

Sufficient electives in mathematics and education selected with the approval of the advisor to complete 32 semester hours of credit.

Three two-hour comprehensive examinations: one in secondary mathematics education, the second in mathematics, and the third in a related area.

Master of Science in Mathematics with Education Option

The purpose of the program is to prepare certified teachers with advanced specialization in mathematics and mathematics education. This program is especially recommended for students considering work for the Ph.D. in mathematics. The program is administered by the Department of Mathematics. Admission requirements are the same as for the M.A. in Education.

Degree Requirements
Minimum of 24 semester hours in the Division of Mathematical Sciences including a two-semester sequence in analysis and a two-semester sequence in algebra.
Two courses in mathematics education:

Comprehensive examination of six hours over the required courses in analysis, algebra, and education. The examination will assess the candidate's knowledge of mathematics and his or her knowledge of the relevance of specific concepts relating to the teaching of secondary school mathematics.

Doctor of Philosophy
The program for a Ph.D. in mathematics education is administered by the College of Education. The 72 semester hours include work toward the master's degree. (All credit must be updated to reflect the years previously taken. Minimum course requirements are for exceptional students.
Typically, a program will involve 90 to 96 semester hours.

The purpose of the program is to prepare supervisors, teacher educators, university faculty members, and researchers in mathematics education.

Admission

Applicants must have an undergraduate major in mathematics or the equivalent; a master's degree in mathematics, mathematics education or education; a 3.0 grade-point average or above; a current teaching certificate; and a minimum of two years of teaching experience.

Degree Requirements

The mathematics education program has the following degree requirements:
A minimum of 36 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including 230 115, 230 116, 230 120, and 230 121. Courses jointly listed in education will not fulfill this requirement. Students who have completed their mathematics requirement at another institution must complete a minimum of 6 additional semester hours of course work in mathematics at The University of Iowa, which are to be chosen with the approval of the advisor.

Competency in two areas of mathematics including statistics and computer science, and algebra or analysis (both may be chosen). This competency will be determined by satisfactory performance on master's degree examinations or their equivalents.
A minimum of 24 semester hours of course work in the College of Education.

Admissions meeting this requirement are to be drawn from mathematics education and from other professional education courses appropriate to the candidate's career plan.

At the completion of the program, the student must:

Have a cumulative grade-point average of 3.0 or above on all graduate work in mathematics;
Have a grade-point average of 3.0 on all University of Iowa graduate work in mathematics;
Have a cumulative grade-point average of 3.0 in all graduate work;
Have a cumulative grade-point average of 3.0 on all University of Iowa graduate work.

These three-hour written comprehensive examinations, one in mathematics education and two examinations selected from the fields of education or mathematics. An oral examination follows the written examinations. It is the student's responsibility to plan a program with faculty members in the areas to select courses that will
prepare the student for these examinations.

Competency in one computer language and

is educational statistics is required.

A dissertation on a research problem in

mathematics education. A prospectus of the

proposed research shall be presented to

the dissertation committee prior to

submitting the study. Upon completion of

the dissertation, an oral examination

will be conducted in defense of the

dissertation. Normally, a student will be

expected to earn a minimum of 10

semester hours of dissertation credit.

Music Education

Both the Master of Arts and Doctor of

Philosophy degree programs in music

education are administered by the School of

Music in cooperation with the College of

Education. Application is made to the

School of Music.

Master of Arts

The purpose of the program is to provide

students with deeper insights into music,

the theory and practice of music education,

and the role of music in the school

curriculum. The degree program may be

taken with thesis (30 semester hours

minimum) or without (36 semester hours

minimum). Admission

The student must be a certified music

teacher or in the process of completing

certification requirements. An

undergraduate grade-point average of 2.5,

exclusive of grades in music courses, is required for

admission to regular status.

Degree Requirements

General requirements:

25:32 Introduction to Graduate

Study in Music 2 s.h.

Music education:

5:240 Introduction to

Contemporary Analysis and

Theory 3 s.h.

25:141 Elective 3 s.h.

Specific hour and course requirements in

the theory and performance areas are determined by scores on the

required examinations.

Music History and Literature:

25:301 Advanced History and

Literature of Music I 3 s.h.

25:302 Advanced History and

Literature of Music II 3 s.h.

25:303-317 Electives 3 s.h.

Specific hour and course requirements in

the history and literature area are determined by scores on the

required examinations.

Music Education (23-17 s.h.)

75:144 Psychology of Music 2 s.h.

75:206 Curriculum-Development in

Music Education 2 s.h.

75:240 Foundations of Music

Education 2 s.h.

Electives to be selected in

consultation with the advisor.

5:245 Research in Music 2 s.h.

Two semester hours of ensemble credit.

Two-four semester hours of applied music.

The amount of elective credit applicable

toward the M.A. degree is dependent upon

the amount earned on the music advisory

examinations and the amount of credit

earned in music education elective courses.

In the written examination, which

requires completion of the degree, the

candidate must take a final written

master's degree examination (12 semester hours).

Areas of concentration covered in the

examinations include music education,

music theory, and music history and

literature.

Doctor of Philosophy

The purpose of the program is to prepare

students for teaching, research, or

administrative functions in the following
types of positions:

College positions—teachers of music

education classes and activities; band,

chorus, and orchestra directors; and

administrators of music departments and

schools of music; or

Public school positions—music

supervisors, research and curriculum

consultants, and directors of city or

district school music programs.

Admission

Application is made to the School of Music. For admission to the Ph.D. program in

music education a student must have a 3.25

grade-point average on graduate work (excluding grades in courses), have

a 700 score on the verbal section of the Graduate

Record Examination (GRE) and 23 on the

verbal section of the Scholastic Aptitude Test (SAT), hold or be qualified for a valid teaching

certificate, and have at least two years of successful music teaching

experience. In addition to the admission

requirements stated above, an appraisal of

teaching success, academic potential, and

writing ability is made by the music

education faculty before qualifications for

admission are finally determined.

Degree Requirements

The Ph.D. degree is granted on the basis of achievement (as determined by course

grades and examinations on the

comprehensive final examinations) and

not on the accumulation of semester hours of credit. The course requirements and

semester hours listed below are to be

considered minimum requirements for the

typical student in preparation for the

satisfactory passing of the comprehensive

and final examinations.

Music (21-29 s.h.)

General

5:251 Introduction to Graduate

Music 2 s.h.

25:205 Musical Acoustics 3 s.h.

5:240 Introduction to

Contemporary Analysis and

Theory 3 s.h.

25:145-152 Elective 3 s.h.

Music History and Literature

25:391 Advanced History and

Literature of Music 3 s.h.

25:392 Advanced History and

Literature of Music II 3 s.h.

25:203 Elective 3 s.h.

25:203-314 Electives 3 s.h.

25:144 Psychology of Music 2 s.h.

75:140 Behavioral Research in

Music 2 s.h.

75:206 Curriculum Development in

Music Education 2 s.h.

75:240 Foundations of Music

Education 2 s.h.

25:144 Elective 2 s.h.

75:140 Psychology of Music 2 s.h.

75:140 Behavioral Research in

Music 2 s.h.

75:206 Curriculum Development in

Music Education 2 s.h.

75:240 Foundations of Music

Education 2 s.h.

25:144 Elective 2 s.h.

75:140 Psychology of Music 2 s.h.

75:140 Behavioral Research in

Music 2 s.h.

75:206 Curriculum Development in

Music Education 2 s.h.

75:240 Foundations of Music

Education 2 s.h.

25:144 Elective 2 s.h.

75:140 Psychology of Music 2 s.h.

75:140 Behavioral Research in

Music 2 s.h.

75:206 Curriculum Development in

Music Education 2 s.h.
Science Education

The following advanced degrees are offered in Science Education: Master of Arts in Teaching Master of Science (with or without thesis) Educational Specialist Doctor of Philosophy All programs are described in the "College of Liberal Arts" section of the Catalog under "Science Education."

Social Studies Education

Master of Arts

The purpose of the program is to provide an opportunity for interdisciplinary work in history, social sciences, or related areas for classroom teachers, high school department chairs, and supervisors, as well as others interested in acquiring greater competency in the social sciences and greater proficiency in teaching and supervision.

Admission

Applicants must have a minimum of 20 semester hours of undergraduate credit in the area of history and/or the social sciences from an accredited institution, a cumulative grade-point average of 3.0 or a 3.0 grade-point average in history and social sciences courses, preferred Graduate Record Examination (GRE) Aptitude Test score of 1000 composite of verbal and quantitative.

Degree Requirements

Thirty-eight semester hours described among history, social sciences, or related areas, with a minimum of 10 semester hours in each of the fields chosen; or Thirty-eight semester hours distributed among the disciplines listed above and education;

Nine semester hours of the total 38 semester hours must consist of graduate courses numbered 200 or above, (extenuating circumstances for coursework in other fields may be approved by the student's academic adviser);

A minimum of 2 semester hours of 300, 398, 402, or 453 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed;

Thesis (if this option is selected)—A research or investigative problem in history, the social sciences, or related areas in which the thesis director will be a member of the appropriate department, or an investigatory project in social studies education, in which case the thesis director will be a member of the College of Education.

Comprehensive Examinations—A two-hour written examination in each of the three fields selected for concentration. The oral examination will be conducted by the candidate's committee as a whole.

Doctor of Philosophy

The purpose of the program is to prepare secondary chairmen, superintendents, curriculum directors, teacher education personnel, and college instructors in the social sciences and pedagogy.

Admission

Applicants must have a bachelor's degree in history or the social sciences; master's degree in history, the social sciences, or education. They must satisfy the requirements for admission to a doctoral program in the Graduate College; and have a grade-point average of 3.0 or above. A minimum Graduate Record Examination (GRE) Aptitude Test score of 1000 (composite of verbal and quantitative) is preferred. Seminar papers or field research are required as equivalent if no thesis was written as part of the M.A. An interview is required prior to regular admission.

Degree Requirements

A minimum of 90 semester hours of coursework and dissertation credit beyond the bachelor's degree and not including tool requirements:

The 90 semester hours are to be distributed among history, social sciences or related areas, and professional education, depending on the background and goals of the candidate.

Seminars and courses numbered 200 or above are required in each of the areas of study constituting the dissertation.

A minimum of 2 semester hours of 398, 402, or 453 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed.

Thesis (if adopted)—The thesis is required to the individual's program and may consist of foreign language or other requirements. Normally a thesis plus research techniques or more of the fields chosen or a language is required.

Comprehensive Examinations—Normal three-hour examinations, one in each of the areas of study, will be required. Depending on the distribution of study, the six hours of written examinations may be waived;

The Ph.D. examining committee consists of a minimum of one faculty member from the liberal arts disciplines and one from social studies education. The remaining members (to make the minimum of five as required by the Graduate College) will be selected with regard to the nature of the student's Ph.D. program and distribution of course work. An oral examination will be conducted by the committee at a whole following the written examination;

Alternatives to the traditional written comprehensive course of examinations are considered by the candidate committee.

Dissertation:

A dissertation on a research problem in history, the social sciences, or related areas in which the dissertation director will be a faculty member of the appropriate department, or on a research problem in the social studies education, in which case the dissertation director will be a faculty member of the College of Education. A prospectus of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion, an oral examination will be conducted in defense of the dissertation.

Continuing requirements for maintaining candidacy: grade-point average of 3.0 plus annual renewal.

Assistantships

A limited number of half-time assistantships are available. Tuition and a stipend for qualified persons pursuing Ph.D. degrees in secondary education. Assistantships may begin for no more than 12 semester hours per semester, and, except with special permission, must be enrolled for at least 6 semester hours per semester. Assistantships' assignments vary. Some involve teaching undergraduate courses of supervision of practicum experiences, and others primarily involve research activities. Assistantships in some liberal arts departments may also be available to attending education students. Candidates with appropriate credentials should apply directly to the department in question or consult the College of Education adviser directing the program in their field.

Courses

7300 Introduction to Teaching The 2.0 hours

7301 Introduction to Urban and Social Studies The 2.0 hours

7500 Introduction to Teaching and English Speech The 2.0 hours
Elementary Physical Handicap
First Year
7U.139 Orientation to Rehabilitation of the Physically Handicapped Child 3 s.h.
3.15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
Second Year
7U.136 Methods of Teaching Physically Handicapped 3 s.h.

Third Year
7U.135 Supervised Teaching with Physically Handicapped 3 s.h.

Students completing this program are recommended for State of Iowa Approval 84 (Physiological Disabilities K-9).

Sophomores and juniors in special education are eligible to apply for the Janet R. Seiber Memorial Tuition Stipend which will be awarded during the junior or senior year. The recipient of this stipend is chosen on the basis of financial need, demonstrated scholastic ability, judgment, and promise of success in a professional teaching career in special education. Preference is given to individuals completing the elementary special disabilities program.

Secondary Mental Retardation
First Year
7U.130 Introduction to Assessment in Special Education 2 s.h.
7U.131 Exceptional Persons 3 s.h.
7U.132 Mental Retardation 3 s.h.
7U.150 Issues in Education 2 s.h.
7U.151 Introduction to Teaching English and Speech 2 s.h.
7U.152 Educational Psychology and Measurement 3 s.h.
7W.51 Audiovisual Equipment for Instruction 1 s.h.
7W.52 Microcomputers for Teachers 1 s.h.
341 Introduction to Sociology: Principles 3 s.h.
Or 342 Introduction to Sociology: Problems 3 s.h.

Second Year
7U.332 Teaching Mildly Mentally Retarded Secondary 3 s.h.
7U.333 Practicum with Mildly Handicapped 2 s.h.
7U.133 Teaching Moderately Mentally Retarded 3 s.h.
7U.34 Practicum with Moderately Handicapped 2 s.h.

7U.133 The Culturally Different in Educational Settings 3 s.h.
7U.154 Methods: Mathematics for Low Achievers 3 s.h.
7U.155 Developing Reading Skills in the Secondary Schools 2-3 s.h.
7U.153 Career Guidance and Job Placement (undergraduate cannot take this course by correspondence) 3 s.h.

TP.170 Introduction to Psychology of Reading 3 s.h.
TW.185 Selection and Use of Media for Instruction to Mentally Retarded 3 s.h.
34141 Juvenile Delinquency or 34150 Criminology 3 s.h.
7U.131 Introduction to Learning Disabilities 3 s.h.
7U.132 Introduction to Behavioral Disorders 3 s.h.
7U.171 Human Relations for the Classroom Teacher 1 s.h.
A course on American history or American government 2 s.h.

Third Year
7U.192 Supervised Teaching with Mentally Retarded 10 s.h.

Students completing this program are recommended for State of Iowa Endorsement 30 (Secondary Teaching) and Approval 81 (Mental Disabilities 7-12).

Preschool Handicap
First Year
7U.36 Introduction to Assessment in Special Education 3 s.h.
7U.136 Exceptional Persons 3 s.h.
7U.132 Mental Retardation 3 s.h.
7U.139 Orientation to Rehabilitation of the Physically Handicapped Child 3 s.h.
3.15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
7W.52 Introduction to Microcomputers for Teachers 1 s.h.

Second Year
7U.120 Methods of Teaching Preschool Handicapped 3 s.h.
7U.36 Practicum with Preschool Handicapped 2 s.h.
7U.136 Teaching Moderately Mentally Retarded 3 s.h.
7U.34 Practicum with Moderately Handicapped 2 s.h.

Third Year
7U.193 Supervised Teaching with Preschool Handicapped 7 s.h.

Students completing this program will be recommended for State of Iowa Endorsement 99 in Preschool Handicapped.

Admission
Fifty-five students who have completed at least one year of college course work are admitted to special education each year. Admission decisions are based on cumulative college grade-point average and experience with the handicapped.

Examples of acceptable experience (volunteer or paid) with handicapped persons are counseling in a summer camp program for the handicapped, working with the handicapped sponsored by community or religious organizations, extensive child- sitting with handicapped children, and aiding teachers in classes for the handicapped.

Documentation forms are available from the Division of Special Education Office. Documentation forms and the application to the Teacher Education Program must be submitted by May 15.

Graduate Programs
The purpose of the graduate programs in special education is to train new personnel and to retrain existing staff, so that both groups can better provide appropriate levels of service to handicapped children. Most applicants to the graduate programs have undergraduate preparation as teachers either in regular or special education. Applications from students without valid teaching certificates will be reviewed by the division admissions committee.

Graduate programs are offered for certification only at the M.A., Ed.S., and Ph.D. degree levels. Initial certifications or additions to present certificates are available at the graduate level in elementary and secondary learning disabilities or behavioral disorders, school psychology, work-study coordination, administration of special education, and teacher education.

Master of Arts
Most students admitted to the M.A. programs in special education are seeking an approval to teach in the behaviorally disordered or learning disabled.

The M.A. program prepares students to function as teachers in resource, integrated, and self-contained classrooms. The program requires a minimum total of 38 semester hours. A list of required courses is available from the division office.

To be admitted to the M.A. program, students must have a certification in special education must already be eligible for certification in either elementary or secondary education. Candidates with prior successful teaching experience are given preference.

Some students who do not wish to seek certification may be admitted to the M.A. program in special education. Numbers admitted depend on the resources available.

Education Specialist
Special Education
The purpose of the program is to provide advanced graduate training for professionals in the field of special education. This may include individuals in consultation, supervisory work, and work-study coordination in special education.

The program requires a minimum total of 36 semester hours.

In addition to the general graduate admission requirements listed below, requirements for admission to this program...
null
71382 Field Service Project in Special Education Internship
Practicum/practicum
Designed specifically for experienced school professionals and/or internship students. Prerequisite: consent of instructor.

71395 Educational Specialist Research
Practicum/practicum
Research involving design, data collection, and writing-up of results as culminating experience for the I.S.C. degree. Prerequisite: consent of instructor.

71493 Ph.D. Thesis in Special Education
Practicum/practicum

71494 Ph.D. Thesis in School Psychology
Practicum/practicum

Student teaching at West High School, Iowa City
Engineering is the profession in which a knowledge of the mathematical and natural sciences is applied to develop ways of economically utilizing the materials and forces of nature for the benefit of mankind. The major aim of engineering is the creation of a new process, product, material, or system that is useful to our society. This activity demands a high degree of creativity coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares young men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include: design, production, development, research, management, and consulting. Engineers are employed in industrial organizations, governmental agencies, and in private practice.

The College of Engineering has two major responsibilities. The first responsibility is to provide high quality undergraduate engineering programs by maintaining contemporary engineering curricula and laboratories, as well as support services such as academic advising and engineering career counseling. The second responsibility is to provide graduate programs in modern areas of engineering that lead to the Master of Science and Doctor of Philosophy degrees. Graduate education involves intensive research activities of a creative nature, and is expected to result in original contributions to the literature at the Ph.D. level.

Programs

The College of Engineering offers programs leading to the Bachelor of Science in Engineering (B.S.) degree in major fields of biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering, as well as a program leading to the B.S. degree without designation of a major. Programs leading to the Master of Science and Doctor of Philosophy degrees are offered in the fields of chemical, materials engineering, civil and environmental engineering, electrical and computer engineering, industrial and management engineering, and mechanical engineering.

Any of the undergraduate programs offered by the College of Engineering may be combined with a program leading to a bachelor's degree in the College of Liberal Arts, an M.B.A. degree in the College of Business Administration, and a bachelor's degree in the College of Engineering. In addition, a combined bachelor's/master's degree program is available through the undergraduate engineering program and the graduate programs in urban and regional planning and the College of Liberal Arts. These combined degree programs normally may be completed in about five years. In addition, a minor in the College of Business Administration or a minor in minors in any degree-granting departmental or approved program by the College of Liberal Arts may be combined with any of the undergraduate programs offered by the College of Engineering.

The undergraduate programs in 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

Degree Requirements

The Bachelor of Science in Engineering (B.S.E.) degree requires a minimum of 128 semester hours of credit, including satisfaction of the specific requirements of the major program as described in the following sections. The candidate for the B.S.E. degree must be enrolled in the College of Engineering for at least the last 30 semester hours, or 45 of the last 60 semester hours, or a total of 56 semester hours and must have a minimum grade-point average of 2.0 on all college work used to satisfy the degree requirement as well as on all work undertaken at The University of Iowa. In addition, the candidate must have completed ZIM 3135 Engineering Calculus I, or their equivalent, with a grade of "C" or better, in each case.

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.

If a student does not graduate on the campus indicated in the application, he or she must file another application for a degree for the next applicable session. Students do not need to be registered to apply for a degree.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, an Iowa resident applicant must have:

- Completed the American College Tests with a composite standard score of 24 or above and a standard score of 24 or above in mathematics (or equivalent SAT scores);
- Successfully completed at least one and one-half units of algebra, one unit of plane geometry, and one-half unit of trigonometry; and
- Ranked in the upper one-half of his or her high school graduating class.

Non-resident freshman applicants must have completed the same units of mathematics as required for resident applicants, and

- Ranked in the upper 30 percent of his or her graduating class, and
- Completed the American College Tests with a composite score of 25 or above and with a mathematics score of 25 or above (or equivalent SAT scores).

High school physics and chemistry are recommended for applicants.

Transfer applicants must submit a formal application and an official transcript of college work undertaken at other institutions. Each applicant must have:

- Completed at least one semester of calculus or its equivalent; and
- Maintained a cumulative grade-point average of at least 2.25.

Fulfillment of the minimum requirements for admission does not ensure admission to the College of Engineering. From the applications, the College of Engineering selects those who appear to be best qualified for the study and practice of engineering.

Undergraduate Curriculum

The undergraduate curricular programs in engineering are designed to assure an adequate foundation in mathematics, basic and engineering sciences, the humanities and the social sciences, and engineering design. In addition to this basic preparation in an engineering specialty appropriate to the challenge presented by today's complex and difficult technological problems. The overall objective of the curricular programs is to provide as integrated educational experience directed toward development of the ability to apply pertinent knowledge to the formulation and application of practical problems in each of the designated areas of engineering specialization. The specific objective of the curriculum is to prepare students for the practice of engineering.

The curriculum is structured in four parallel pathways extending through most of the entire four years of undergraduate study. The students are mathematics, basic and engineering sciences, humanities and social sciences, and engineering analysis and design. The mathematics, basic and engineering sciences, and humanities and social sciences develop the background required for the engineering major. Add to this basic preparation in an engineering specialty appropriate to the challenge presented by today's complex and difficult technological problems. The overall objective of the curricular programs is to provide as integrated educational experience directed toward development of the ability to apply pertinent knowledge to the formulation and application of practical problems in each of the designated areas of engineering specialization. The specific objective of the curriculum is to prepare students for the practice of engineering.

The curriculum is structured in four parallel pathways extending through most of the entire four years of undergraduate study. The students are mathematics, basic and engineering sciences, humanities and social sciences, and engineering analysis and design. The mathematics, basic and engineering sciences, and humanities and social sciences develop the background required for the engineering major. Add to this basic preparation in an engineering specialty appropriate to the challenge presented by today's complex and difficult technological problems. The overall objective of the curricular programs is to provide as integrated educational experience directed toward development of the ability to apply pertinent knowledge to the formulation and application of practical problems in each of the designated areas of engineering specialization. The specific objective of the curriculum is to prepare students for the practice of engineering.
ENGINEERING

called the engineering core, consists of courses in mathematics, chemistry, physics, rhetoric, and engineering science and design. This course provides instruction and practice in speaking, writing, and critical reading. Most of the core courses are scheduled in the last two years. This permits the first semester of the freshman year to be entirely common and the first three semesters to be arranged so that a student may follow any program major, transfer between majors when eligible, or not declare a major during this period, with only minor adjustments in scheduling. This gives students time to become familiar with the various major areas before choosing a specific engineering program.

In addition to the core program and the humanities and social sciences sequence, which is also common to each program, each degree program specifies a required group of courses that provides a common depth and breadth of topics to every student in each of the curricular programs. These courses provide the common background that the faculty expects of every graduate. The remaining courses are technical electives chosen by the student in consultation with his or her academic advisor. These courses allow the student to develop additional depth in areas of special interest and are ordinarily taken at the senior level.

The curriculum for the freshman year in:

First Semester

411A Principles of Chemistry 3 a.h.
101R Rhetoric 4 a.h.
103R Rhetoric 4 a.h.
22M35 Engineering Calculus I 4 a.h.
57:3 Introduction to Engineering 2 a.h.
173 Engineering Graphics 2 a.h.
Total 15 a.h.

Second Semester

416 Principles of Chemistry Lab I 2 a.h.
102R Rhetoric 4 a.h.
or
Humanities or social science elective 3 or 4 a.h.
22M36 Engineering Calculus II 4 a.h.
22M40 Matrix Algebra for Engineers 2 a.h.
57:3 History of Philosophy 3 a.h.
7:3 Fine Arts 2 a.h.
Total 16 or 17 a.h.

A maximum of 4 semester hours is allocated for satisfaction of the rhetoric requirement. Students who qualify for 101R are able to satisfy the requirement with this single course, while those required to complete the 6-semester-hour sequence of 101-1-2 may apply only 4 semester hours toward their engineering program.

Credits earned for courses below the level of the beginning courses specified in each engineering curriculum will appear on a student's grade report and permanent record, but generally will not be used to satisfy any elective or required course requirements for an engineering degree. Examples of courses in this category include: rhetoric: 101R, 22M1-22M20, chemistry 45-45A, and physics 294-295T. Courses listed above are required of all students in engineering. 41 1 Principles of Chemistry I is recommended during the second semester for students who are biochemistry or chemical engineering majors. Students in these majors normally postpone taking 22M40 (Matrix Algebra for Engineers) until the first semester of the sophomore year. Students pursuing a major in industrial engineering should review the social science requirement specified for that major before selecting any social science courses.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences requirements is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum. Supportive of this goal, the student selects, with the advisor's approval, a minimum of 15 semester hours of humanities and social science electives that includes at least 6 semester hours of course work in the humanities and at least 6 semester hours in the social sciences. Because the social science courses in the industrial engineering major are specified and are set open to the same selection process, students considering a major in this program should consult the industrial and management engineering program requirements presented later. Courses which are primarily mathematical or scientific in nature and those which are specifically designed to develop intermediary language skills—speaking or writing skills, artful or music skills—are not acceptable as elective credit even though they are offered through departments listed below.

The humanities electives may be selected from any of the following departments and schools:

American studies: 2 a.h.
American literature and culture: 2 a.h.
American languages and literature: 2 a.h.
Asian languages and literature: 2 a.h.
Communication studies: 2 a.h.
Corporations: 2 a.h.
Dance: 2 a.h.
Design: 2 a.h.
Drama: 2 a.h.
History: 2 a.h.
Industrial arts: 2 a.h.
International studies: 2 a.h.
Latin American studies: 2 a.h.
Literature: 2 a.h.
Mathematics: 2 a.h.
Music: 2 a.h.
Philosophy: 2 a.h.
Physics: 2 a.h.
Political science: 2 a.h.
Psychology: 2 a.h.
Religious studies: 2 a.h.
Sociology: 2 a.h.
Spectroscopy: 2 a.h.
Vocational guidance: 2 a.h.

A program of study must be developed and approved by the advisor from both colleges, it is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the time required to complete the combined degree program. The student in the combined program normally may meet the baccalaureate degree requirements of both colleges in about four academic years.

However, the exact length of time required to complete the combined degree program will be determined by the major areas of study selected in liberal arts and engineering.

Students selecting this program are required to complete the General Education Requirements and the requirements for the major as well as the residence requirement in the College of Liberal Arts. The specific engineering program taken by the student will vary, according to the engineering specialty selected. Since the courses in science, mathematics, and the humanities and social sciences are generally accepted for credit in the second college, it is, in many cases, satisfying the requirements for two colleges by taking one particular course.
Combined College of Engineering-M.B.A. Program

An alternate title for the Combined College of Engineering-M.B.A. Program ("A Program") has been issued by the College of Business Administration for superior undergraduates who want to begin their M.B.A. studies while finishing their engineering degree. Strategic selections of course work may allow such students to complete bachelor's degree in four years and the M.B.A. degree in the fifth year. Exceptional students with interest and competence in the applied sciences and business administration may enhance their managerial career opportunities through this new combined degree program.

Students who qualify for the A Program must have completed two years of engineering study, earn a 3.5 grade-point average or better, and indicated the intent to pursue both degree programs simultaneously on a full-time basis. Students selected for admission to this program may be candidates for 800 scholarships per semester while undergraduates, and candidates for 1,000 fellowships per semester ($700 for summer session) while graduate students.

The undergraduate scholarships will be provided by the College of Engineering and the graduate fellowships by the College of Business Administration.

Admission to the A Program does not guarantee admission to the Graduate College. However, since the undergraduate admission requirements are very high and the undergraduate teaching is of high quality, it is anticipated that admitted students should readily qualify for admission to the graduate M.B.A. program upon application. A cooperative education internship experience before being admitted for M.B.A. students. This professional experience with private industry is considered to be an integral part of the M.B.A. program and is generally scheduled for the summer semester following completion of the bachelor's degree.

The M.B.A. curriculum is designed for students with an undergraduate degree in business courses in business are required. The program consists of five components: foundation courses, integrated core elective courses, core elective courses. The integrated core courses and elective courses must be completed after the student has been admitted to the Graduate College. Foundation courses, however, may be completed while the student is enrolled as an undergraduate. Engineering students may anticipate satisfying the preparatory exam or equivalent course work for a waiver from certain foundation courses.

Engineering students are assigned a major adviser in the College of Engineering. Upon acceptance into the A Program, advising for the M.B.A. program is provided by the chairman of the coordinating committee of the College of Business Administration. Coordination of the combined degree program for the A Program students will be provided by the assistant to the dean of the College of Engineering and the associate dean of the College of Business Administration.

Combined B.S. in Engineering-M.S. Planning Degree Program

A program combining a bachelor's degree in engineering with a master's degree in urban and regional planning has been developed for students who want to pursue a career in planning in either the public or private sector. Planning encompasses the development of alternatives to improve the quality of life in cities and regions. Planners devise courses of action in response to a variety of problems and opportunities and assess the likely outcome of these actions. Planners are involved in diverse fields such as land use, transportation, housing, environmental quality, public services, and economic development.

This special program enables a student to acquire a B.S. in engineering and an M.A. or M.S. in planning in a total of five academic years. In this accelerated program, course work is reduced by up to one academic year from the separate requirements for the two degrees. The student should apply for both programs either when applying for admission to the engineering college or prior to the completion of his or her sophomore year following matriculation. Applications should be submitted to the College of Engineering, the College of Business Administration, and the University of Iowa.

The curriculum is based on the general philosophy that planners must develop the (theoretical) and analytical skills that permit them to identify issues and recommend acceptable policies. Texts are selected that are appropriate to the program. The program is designed to be completed in five years. This program is particularly suitable for students who wish to complete studies in both fields. The student should have the necessary qualifications in both fields.

At the heart of The University of Iowa planning program is an integrated core curriculum. Its purpose is to provide a rigorous foundation for the analysis of public and social issues. The core program is designed to accommodate students who have completed two years of the undergraduate program as social science and technical elective courses. Sectoral majors (areas of concentration) are arranged around public policy policy and issues are included transportation, housing, and community development, environmental quality, urban infrastructure, and economic development. The student must complete a sectoral major by completing 3 semester hours of credit in one of the following subject areas offered in various departments of the University, including the graduate planning program and the engineering college.

Each student is assigned an adviser from engineering and one from planning. During the first four years of the program, students work with an engineering adviser and a planning adviser under the coordination of the director of the general engineering program of the College of Engineering. For the fifth year, students confer with their graduate planning adviser.

Two Bachelor's Degrees in the College of Engineering

Recent College of Engineering graduates and current students may earn two bachelor's degrees in engineering. The requirements for the second degree are to complete at least 30 additional semester hours of credit work beyond the requirements of 128 semester hours for the first degree program and earn a minimum grade-point average of 2.0 or this additional work. The additional semester hours must include all courses required by the program selected for the second degree, including the second degree program as well as any specific social science elective requirements. The technical electives selected for the second degree program must be of a variety and level that permit the student to meet at least the minimal level of competence, normally expected of graduates of that program.

A student must file an academic plan of study which must be approved by the faculty of the second degree program and submitted to the office of the dean before initiating the course work in the second degree program. The approved academic plan must indicate a list of courses to be taken in the second program along with a list of the courses already completed and yet to be completed for the first engineering degree program. The approved plan is to be submitted to the office of the dean and placed in the student's permanent file before the student begins course work in the second program. Approval of the academic plan is subject to approval by the student's faculty adviser in the second degree program and by the department chair of that program (the current petition form is in this catalog) and is then submitted to the office of the dean for inclusion in the student's permanent file.

Minors

Students graduating from the College of Engineering may earn a minor in the College of Business Administration or a minor or minors in any degree-granting department or approved program in the College of Liberal Arts. A notation of the minor will be made 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 to assure that the designation is noted on their transcript.
Minor in the College of Business Administration

Requirements for a minor are: two economics courses, two accounting courses, a marketing course, a management course, a finance course, and a legal environment course. In addition to these required courses, a student normally would complete a calculus course, a computer course, and a probability and statistics course. Engineering majors satisfy the mathematics, statistics, and computer science requirements with courses 220:35 57-f, and 220:39, a 2.0 grade-point average in the courses applicable to the minor is required. Students who wish to complete a Master of Business Administration degree later should select courses which will satisfy M.B.A. requirements.

Minor in the College of Liberal Arts

Requirements for a minor are: a minimum of 15 semester hours in the minor department, at least 12 of which are in advanced courses acceptable to that academic unit (students should confer with the minor department to identify acceptable courses). The student must achieve a 2.0 grade-point average in the courses applicable to the minor. Courses to be counted toward the minor may not be taken on a pass-fail basis.

Cooperative Education Program

Cooperative education involves the integration of academic work with practical experience in industry. Participating students spend alternate periods in full-time academic study on campus and in full-time engineering-related employment in business, industry, or government.

While the student can earn a substantial portion of credits approved during the work periods, the success of the program depends on the work experience having significant educational value as well. This is assured by the extent and quality of the work experience provided by participating employers and by students' interest and ability to the work situation.

The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study periods, with a corresponding improvement in academic record. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many technical considerations involved in any engineering project.

The co-op phase ordinarily begins during or immediately following the sophomore year and continues until the beginning of the senior year. The total time for the degree program under this option normally is five years and includes the equivalent of at least one full year of work experience.

The program is an option available to qualified students on a voluntary basis.

Undergraduate Academic Advising Center

The Undergraduate Academic Advising Center helps students who have not selected a program of study. Included in this group are students who may be considering engineering, among other fields of study, but who are not yet ready to declare a specialized major. For help in choosing a program, students are assigned an adviser from the center rather than from a specific department. These students meet frequently and regularly with their assigned adviser for help with various academic matters, ranging from building a schedule of courses for the next semester to receiving counseling on choosing a career. For the convenience of students, the advisers' offices are located in the residence halls. For more information, students may contact the Director, Undergraduate Academic Advising Center, Burge Hall, The University of Iowa.

Academic Standards

Semester Load Limit

A normal academic load is about 16 semester hours of course work for a semester. A semester is a four-month period. No student may register for more than 18 semester hours in one semester, or 9 semester hours in a summer session, without the permission of the advisor.

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, according to the following:

Freshman—fewer than 28 semester hours;
Sophomore—28 to 55 semester hours;
Junior—56 to 89 semester hours;
Senior—90 or more semester hours.

Grading System

The college uses the four-point grading system, in which grade points are awarded on a scale descending from A = 4. For a full description see "Academic Programs" in the "Learning at Iowa" section of the Catalog.

Academic Probation and Good Standing

A student enrolled in the College of Engineering who fails to attain the following minimum semester and cumulative grade-point averages based on all work taken at The University of Iowa shall be placed or continued on academic probation:

Freshman—1.8;
Sophomore—1.9;
Junior—2.5;
Senior—2.0.

A student whose semester and cumulative grade-point averages equal or exceed those appropriate to his or her classification and who is not considered to be in good standing in the college.

A student will be removed from, or placed on, academic probation only at the end of a semester. A student will not be permitted to register without specific approval following two consecutive semesters on probation. A student who has not made satisfactory improvement in scholarship may be dismissed from the college; such students may petition the assistant to the dean for permission to re-enroll after an interval of two regular semesters.

Dropping and Adding Courses

Courses may be added with permission of the adviser and the instructor during the first three weeks of the semester or first and one-half weeks of the summer session.

Courses may be dropped with permission of the instructor at any time during the first ten weeks of the semester. Only under compelling circumstances may courses be dropped after the tenth week, in which case special approval must be granted by the adviser, the course instructor, and the associate dean. Under no circumstance is a student permitted to drop after the beginning of the scheduled final examination period.

Undergraduates will receive the mark of 'W' for a course dropped after the tenth week of the semester or first and one-half weeks of the summer session. To curtail excessive registrations and dropping of the same course, a student may not drop the same course more than once, and not more than twice. If a student tries to drop the same course for the third time, the registration center will not accept a drop slip for that course and the student must be assigned a grade for the course. Special courses that may be dropped during this time.

Withdrawal of Registration

A good student in academic standing who withholds his or her registration during the final four weeks of a regular semester, or during the final three or two weeks of a butter or eight-week summer session, respectively, will not be permitted to enroll for the semester immediately following without specific approval from the assistant to the dean.

A student on scholastic probation who withholds his or her registration at any time without good cause will be considered
as having been disclosed for poor scholarship.

Withdrawal cards for students enrolled in the college will be signed by the assistant to the dean only after recommendations of the student’s adviser and department chair.

Pass/Nonpass Option
A maximum of two courses taken in the colleges of Liberal Arts or Business Administration on a pass/nonpass basis may be applied toward satisfaction of the humanities and social sciences requirement. Students who want to take such courses in liberal arts or business administration on a pass/nonpass basis must meet the conditions and follow the procedures specified by those colleges. The pass/nonpass option may not be used for courses taken to satisfy the rhetoric requirement.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass/nonpass basis under the following conditions:

The signatures of the adviser and instructor must be obtained on the proper form and the completed form must be submitted to the registrar by the student within the time period established by university policy.

The mark of P (pass) will be awarded where the final course grade earned was A, B, or C; the mark of N (nonpass) will be given for grades of D or F; marks of P or N will not count as a computation of grade-point average and the mark of N will not count as earned hours.

No course work taken in the College of Engineering under a pass/nonpass option may be used to satisfy requirements for an engineering degree.

Second-Grade-Only Option
A student may elect to repeat a course with only the new grade being counted in his or her grade-point average. A course can be elected only prior to completion of a course for which the repeated course is a prerequisite. The option may be applied to no more than three courses and it may be applied only once to a given course.

Transfer students may apply the option on a prorated basis. For example, a student transferring no more than 42 semester hours of applicable engineering course work may use this option for a maximum of three courses, while a student with between 42 and 86 semester hours of credit may use this option for no more than two courses, and students with 86 or more semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the assistant to the dean.

Satisfactory-Fail Courses
The noncredit professional seminar courses, that are required in each of the professional programs, are offered only on a satisfactory-fail basis. No other engineering courses are offered on this basis. No F (failure) grade earned for such a class will not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades
A mark of I (Incomplete) or NR (No Report) that is not replaced by a final grade prior to the announced deadline during the student’s next regular semester or registration will be replaced by a final grade of F (Failure), with the exception that students with incomplete from the spring semester are exempt from completing the course during the succeeding summer session.

Recognition for Academic Achievement
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 students in the next highest five percent. Ranking is based on the student’s grade-point averages for all college-level study undertaken up to his or her final registration.

To be eligible for this form of recognition, the student must take his or her final 40 semester hours of study in residence in the college, and may not have completed at least 45 semester hours of study in the college before his or her final registration. Students in the combined engineering/liberal arts program are eligible for this recognition regardless of the college in which they complete their residency requirements.

Dean’s List
Engineering students who achieve grade-point averages of 3.5 or above during a given semester will be eligible for the honor of being placed on the dean’s list. Students meeting the grades still standing on the current or past semester’s record are recognized by inclusion on the dean’s list for that semester.

President’s List
Students earning a 4.0 grade-point average for two consecutive semesters (excluding summer sessions) on at least 12 or more semester hours of graded work, with no I or NR grades still standing on the current or past semester’s record, are recognized by inclusion on the president’s list.

Other College Policies

Advanced Placement Program
Students who have earned college-level courses in high school through the

Advanced Placement Program (AP) of the College Entrance Examination Board and achieved satisfactory scores on the comprehensive examination administered through the Advanced Placement Program will be awarded college level credit. For example, students earning scores of 3, 4, or 5 in an AB-level calculus course in the Advanced Placement Program will receive 4 semester hours of credit for course 22M35, Engineering Calculus I. Likewise, students earning scores of 3, 4, or 5 in a BC-level calculus course will receive 8 semester hours of credit for 22M35 and 22M36, Engineering Calculus I and II. Credit earned through other AP courses also may be applied to other engineering course requirements as appropriate to content and level, so long as credit for those requirements has not already been earned by other exams or by course enrollments. Questions about AP credits should be directed to the assistant to the dean.

CLEP Credit
Credit earned through the College-Level Examination Program (CLEP) may be applied to meet appropriate requirements in engineering, for example, up to 7 semester hours of credit earned on the social science general exam and/or on the subject exams on separate social sciences topics may be applied to satisfy a portion of the social science requirement. Similarly, up to 7 semester hours of credit in the general and/or social subject exams on the humanities may be applied to satisfy a portion of the humanities requirement. However, no more than a total of 10 semester hours of credit earned through CLEP may be applied to the total humanities and social sciences requirements in the Engineering curriculum. Credit earned on other CLEP subject exams already be applied to meet other course requirements as appropriate to content and level on a non-duplicative basis. Questions about CLEP exams and credits should be directed to the assistant to the dean.

Credit by Examination
Students who have acquired knowledge in engineering courses other than formal course registrations may be granted the opportunity to obtain credit toward graduation by examination. For example, an engineering course may be earned by achieving a satisfactory test score on a comprehensive exam similar to a final exam for that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to apply for credit by examination should contact the assistant to the dean.

Credit by Validation
Students with course credits obtained at an unrecognized institution may request the validation of this credit up to a maximum of 16 semester hours. Credit by validation may be granted after the student has completed at least 24 semester hours of course credit at The University of Iowa, which will include appropriate courses for
which the work to be validated are prerequisites. Students with uncredited work who wish to utilize this option should contact the dean during the first semester of enrollment in the College of Engineering.

Credit from Other Colleges
Course Requirements in engineering may be satisfied by credits obtained from courses taken in other colleges of the University or at other accredited colleges or universities. When the student applies for admission to the College of Engineering he must submit official transcripts from each college attended along with the application for admission. After the credit has been certified as college level work from an accredited institution by the Office of Registrations and after admission has been granted, the credit is evaluated by the assistant to the dean either prior to or during the first two semesters of enrollment in the college. Satisfaction of engineering course requirements by transfer course work 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 courses, and the grades earned for such courses are C or better. Students who want to satisfy the engineering sciences and humanities requirements, or The University of Iowa's elective requirements by transfer work should contact the assistant to the dean for details. Students planning to attend a two- or four-year institution before transferring to the College of Engineering are well advised to discuss the planned transfer with the dean at both colleges before embarking on a transfer program. The College of Engineering does have recommended course lists for most Iowa community colleges and some four-year colleges. The course lists are available by contacting the department to which you are enrolled in the College of Engineering, all course work taken at other institutions must be reviewed by the dean to determine whether the dean if credit for it is to be applied to meet the specific requirements.

Course Substitutions
For students in the College of Engineering, the substitution of an alternate course for a required course requires the approval of a petition. The petition form is available in the office of the dean. The form must be completed by the student and approved by the student's advisor and the chair of the academic department in which the student is majoring. If a section does not meet the requirements for the required engineering core course, then it must also be approved by the associate dean who administers the college curriculum committee. Substitutions for required engineering core courses are to occur infrequently and only under compelling circumstances. Substitutions of courses that are required by the student's department program are approved by the department chair. Substitution of courses for required engineering courses is to be approved only by the faculty advisor and the department chair. All petitions must be forwarded to the office of the dean for inclusion in the student's permanent file.

Auditing Course
Students in the College of Engineering may register for a course for zero credit (audit) with the permission of the instructor and the advisor. The mark of "R" will be assigned to those registered for the course for zero credit where attendance and performance are satisfactory. If unsatisfactory, the mark of "W" will be assigned. Courses completed with a mark of "W" do not meet any requirements nor carry any credit toward graduation. Auditing may not be used as a second-grade-only option. To register for a course on an audit basis, the student must enter the course on the registration card in the usual manner. However, that zero credit hours should be indicated. The instructor's authorizing signature and the student's signature also are required on the reverse side of the registration card. To change registration from audit to credit or from credit to audit, a drop-add form is used. These changes must be made during the first three weeks of a semester or one and one-half weeks of a summer session.

Student Academic Misconduct
Regulations dealing with cases of cheating or plagiarism are delineated by a committee policy. In cases of cheating on exams or quizzes, the policy recommends that the instructor reduce the student's grade, including the assignment of an F for the course. When a course grade has been reduced to an F, the student may not drop the course nor use the second-grade-only option to eliminate the failing grade. At the beginning of each semester, course instructors individually announce and explain their policies regarding disciplinary actions of student-student collaboration on graded work, which includes homework assignments, and lab or design projects. When a policy is violated to any degree, a grade assigned for the total portion of the course grade will not exceed the requirement in which the violation occurs. The instructor sends a written report of any disciplinary action to the office of the dean and the report is placed in the student's file. The student is notified by the office of the dean of any disciplinary action required pursuant to the informed of appeal procedures if he or she wants to protest the action.

Student Complaints Concerning Faculty Actions
In cases where complaints do not involve alleged student academic misconduct, students with complaints against faculty first should attempt to resolve the issue with the faculty member. Lacking a satisfactory outcome, the student should discuss the matter with the chair of the faculty member's department. Students who are not satisfied with the decision by a faculty member or a department chair may seek assistance from the faculty ombudsman when attempting to resolve a complaint. However, grievances generally can be satisfactorily resolved must be expediently at the faculty or chair level. It the student is not satisfied with the outcome of this procedure, he or she should discuss the complaint with the dean of engineering.

Student Organizations and Activities
The College of Engineering student body is organized as the Associated Students of Engineering. This organization provides a mechanism for planning and carrying out activities involving the entire college, such as the student and faculty-policys, the homecoming court membership, MECCA Week, and sponsoring of a nationally prominent speaker during National Engineers Week. The organization also acts on college-wide matters of general student interest. Engineering students publish their own student journal, the Iowa Engineer. All positions are staffed by students, with faculty serving only in an advisory capacity.

Student branches of the American Institute of Chemical Engineers, the Institute of Industrial Engineers, the Society of Computer Simulation, the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the Institute of Electrical and Electronics Engineers are active at The University of Iowa.

The UI chapter of Tau Beta Pi, a national honor society for students in all engineering fields, gives special recognition to superior students in their junior and senior years. Senior and graduate engineering students who have special ability in research are eligible for election to Sigma Xi. Phi Lambda Upsilon, honorary chemistry and chemical engineering society, Chi Epsilon, honorary civil engineering society, Eta Kappa Nu, honorary electrical engineering society; Alpha Kappa Mu, honorary industrial engineering society, and Pi Tau Sigma, honorary mechanical engineering society, recognize the work of outstanding students in their respective fields.

Student organizations dedicated to providing support and assistance in the development of more equitable enrollments of minorities and women in the college are the Black Students in Engineering and the student chapter of the Society of Women Engineers. A local chapter of Tau Tau, a national professional engineering fraternity, is affiliated to serve the college and draws its membership from students throughout the college.
Professional Registration

Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from an accredited engineering curriculum at least one year, followed by four to eight years of practical experience.

In Iowa the agency that controls and monitors the licensing procedure is the Iowa Board of Engineering Examiners. The first step is the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given at the University near one time of graduation. Graduates of unapproved programs must computer at least one year of professional experience to be eligible to take the engineering fundamentals exam. Following graduation and the successful completion of the engineering fundamentals exam, the graduate receives an Engineer-in-Training (EIT) certificate. The final step in the procedure is to pass the advanced exam in a specialty area following the minimum of four years of approved professional experience. At this point the graduate engineer is a registered "Professional Engineer."

Graduate Programs

The general rules and regulations for the graduate programs are established by the Graduate College. However, the specific admission and degree requirements for each graduate engineering program are included in the section for each individual program. Also included in these sections are 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 70,000 books and 900 periodicals. It is equipped with microfilm and microfiche readers, and provides study spaces for 100 library users.

Iowa Computer-Aided Engineering Network (ICAEN)

This facility provides primary support for instructional computing in the College of Engineering. ICAEN consists of approximately 60 Apollo Computer engineering workstations. Each of these is a powerful computer together with a high-resolution video display for graphics applications. The Apollo is tied together by a high-speed network, allowing all stations to share common data, programs, and peripheral devices. The Apollo is augmented by a large number of Apple

Machines local personal computers. The Multibus that can be used at the user's discretion, function as stand-alone facilities, or be tied to the Apollo network or WeAc Computer Center facilities. A variety of printers, plotters, and other specialized devices are available through the ICAEN system. Software supported by ICAEN includes several programming languages as well as graphics and word processing facilities. Additional facilities are available to students throughout the undergraduate and graduate engineering programs and in all engineering disciplines. Two large student laboratories provide engineering students with access for ICAEN. The Howard H. Auden Laboratory for Engineering Computing, located on the fourth floor of the Engineering Building, houses 20 Apollo workstations and 40 Macintoshes together with printers, plotters, and other related equipment. A second, functionally identical facility is located on the first floor. Small work station clusters for software and course development workshops are located in each of the six engineering departments.

Computer-Aided Engineering (CAE) Laboratory

The CAE laboratory is used for teaching computer-aided engineering. The laboratory contains interactive computer graphics terminals connected to a PRIME 750 microcomputer, a digitalizing tablet, a line printer, and a projection system. It also contains several stand-alone microcomputers.

The laboratory is used for teaching computer-aided graphics and design on both the undergraduate and graduate level. Software is available for a wide range of applications, including optimal design, finite element analysis, structural analysis, and dynamic analysis of mechanical and structural systems, office and plant layout, chemical engineering process flow sheet preparation, and several others. The main cluster of graphics terminals and associated printers are located in Rooms 1300 of the Engineering Building.

Computer Services

In addition to the local facilities provided by ICAEN, services of the WeAc Computer Center are available to students and faculty of the college. Access to WeAc facilities is available at student computing laboratories in the college. The Center for Computer-Aided Design has dedicated PRIME 750 and VAX 11-780 minicomputers, two high-speed array processors, and extensive graphics equipment for research in computer-aided design. The Center for Computer-Aided Design Laboratory has a PRIME 750 and graphics equipment for instruction. The electrical and computer engineering department has two VAX 11-750 supermini-computers and several color graphics work stations for teaching and research. In addition, a number of minicomputers and microcomputers are available. The department is responsible for specialized use by students and faculty.

Employment Placement Services

The Engineering Placement Office is a resource center for students and alumni who are seeking professional employment. It serves both full-time and part-time students who are employed on-campus or seeking employment. The Engineering Placement Office, located on the third floor of the Engineering Building, houses 20 Apollo workstations and 40 Macintoshes together with printers, plotters, and other related equipment. A second, functionally identical facility is located on the first floor. Small work station clusters for software and course development workshops are located in each of the six engineering departments.

Organization of the College

The College of Engineering is organized into six departments and three research units. The departments are biomedical engineering, chemical engineering, civil and environmental engineering, electrical and computer engineering, industrial and management engineering, and mechanical engineering. Each department offers an undergraduate degree program and, except for biomedical engineering, all other graduate degree programs. A program in biological engineering is offered through the Department of Biological Sciences.

In addition to the departments' degree programs, the college offers an undergraduate degree in engineering for students who want to tailor-make a special program that may not be available through the traditional majors. Information about the degree programs follows in later sections.

The three research centers are the Iowa Institute of Hydraulic Research, the Center for Medical Research, and the Center for Computer-Aided Design. Descriptions of these units follow.

Iowa Institute of Hydraulic Research

The Iowa Institute of Hydraulic Research (IIHR), a unit of The University of Iowa's College of Engineering, has been widely acknowledged for 30 years as an international leader in numerous areas of fluid mechanics and hydraulic engineering.
It was organized formally in 1931 to coordinate capabilities, facilities, and resources available at the University for research on problems in engineering, humanities, and social sciences.

Active programs of basic and applied engineering research, conducted in five working laboratories, with total floor space exceeding 72,000 square feet, are currently being pursued at IBM in the following areas: aerodynamics, turbulent shear flows; boundary layers (with emphasis on thick and three-dimensional boundary layers); viscous aerodynamics, computational fluid mechanics and hydrodynamics, ship hydrodynamics; hydrology; water-resource systems; river engineering; sediment-transport mechanics; oceanic engineering, hydraulic structures, biological fluid mechanics, water-quality dynamics; hydraulic-energetics discipline; and pump intake.

High-level involvement of graduate students in a hallmark of most IBM projects. Because it is a unit of the College of Engineering, and because of its heavy involvement in fluids engineering for industry and its updated fundamental research programs, IBM provides advanced-degree students and postdoctoral researchers unique opportunities for valuable research, educational, and engineering experiences.

Center for Materials Research

The Center for Materials Research was founded on the philosophy that technologies of the future require the integration of a variety of disciplines in order to transcend traditional methods of research and development. The center has a strong focus on basic and applied research in biomedical engineering, with particular emphasis on biomechanics and bioelectric materials. Some notable projects include: trauma kinesiology and spine injuries, hemodynamics; cardiac mechanics, prosthesis heart valves, bone and ligament biomechanics, replacement, total joint replacement, pulsed electromagnetic effects on tissue, vibrations, white fingers, and biomedical image analysis and processing.

Graduate and undergraduate student participation in interdisciplinary research and development is encouraged and supported by the center. The faculty members of the center also engage in numerous consulting activities for industry, government, and other universities.

Center for Computer-Aided Design

The Center for Computer-Aided Design was founded to enhance research and development of design methods using modern computer technology. The research program of the center is focused on mechanical systems, dynamic systems, design control, system analysis, structural optimization, and dynamic computer graphics. A research facility consisting of PRIME 750 and TACER 780 supercomputers, CIRP 640 and 6430 arithmetic processors, graphics workstations, a dynamic graphics system, and other related computer equipment, supports the faculty, staff, and students.

Faculty, staff, and students participating in the center develop and distribute computer software to government and industrial agencies for use in a broad spectrum of mechanical and structural design activities.

Course Numbering System

The title of each course offered by the College of Engineering is preceeded by a two-digit prefix and a three-digit suffix separated by a colon. The first digit of the prefix identifies the level of the course; the second digit determines the core course or the courses offered by the departments as follows:

1—Biomedical engineering
2—Chemical and materials engineering
3—Civil and environmental engineering
5—Electrical and computer engineering
6—Industrial and management engineering
7—Engineering core
8—Mechanical engineering

The two- or three-digit suffix of a course number identifies the level and type of course. Generally, the suffix numbers less than 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates. The table below provides a more detailed listing of courses numbers and the information they convey about level and type of course.

1-9—Freshman core courses
10-19—Sophomore core courses
20-29—Junior core courses
30-49—Required courses in undergraduate programs

91-94—Undergraduate professional program seminars
95-97—Contemporary topics courses for undergraduates
98—Individual investigation courses for undergraduates
101-109—Courses for which little or no engineering, science, or mathematics background is required
110-119—Graduate elective or lower level graduate course
120-299—Upper level graduate courses
291-294—Seminars for graduate students
295-297—Contemporary topics courses for graduate students
299—Ph.D. thesis research

The courses offered by each department are listed in the department's section by discipline area, starting with the lowest level course and proceeding to the highest level courses. Most courses have prerequisites stated in terms of courses at this university, equivalent academic background may have been obtained by a student through previous course work at other colleges and universities. The student should consult with the course instructor if there is any question concerning the academic background needed for a particular course, and the student should obtain the consent of the instructor to register for the course. Engineering students may enroll in any course in the College of Engineering if the student meets the course prerequisites and corequisite requirements. Non-engineering majors may enroll in engineering courses only by consent of the assistant to the dean. Consent for enrollment in an engineering course will be based on space available, as well as on the mathematics, science, and engineering course background of the student and that considered necessary to satisfactorily undertake the course work.
Biomedical Engineering

Sophomore Year
First Semester
228.40 Matrix Algebra for Engineers 2 s.h.
228.41 Differential Equations for Engineers 3 s.h.
571.10 Dynamics 3 s.h.
571.50 Methods to Electrical Science 3 s.h.
572.15 Principles of Biophysical Science 3 s.h.
Total 16 s.h.
Second Semester
228.42 Vector Calculus for Engineers 4 s.h.
571.12 Linear Systems Analyis 3 s.h.
721.25 Biomedical Engineering 4 s.h.
491.60 Humanities or social science elective 3 s.h.
Total 16 s.h.

Junior Year
First Semester
225.39 Probability and Statistics for Engineers 3 s.h.
571.30 Biological Systems Analysis 3 s.h.
571.51 Introduction to Computers in Electrical Engineering 4 s.h.
571.71 Thermodynamics 4 s.h.
571.91 Principles of Electronic Instrumentation 4 s.h.
491.90 Professional Seminar: Biomedical Engineering 0 s.h.
Total 17 s.h.

Undergraduate Program
The curriculum outlined below is based on the foundation provided by the College of Engineering core courses, and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. The curriculum has been carefully designed to enable the student to satisfy the entrance requirements of the Graduate College and, with the addition of a three-course sequence in organic chemistry, the College of Medicine.

Curriculum
Graduate Program

The biomedical engineering faculty supervises students interested in pursuing graduate study in biomedical engineering through our graduate programs, such as the graduate program in electrical and computer engineering, mechanical engineering, dentistry, and medicine.

Research currently is being carried out in the areas of biomaterials, biomechanics, cardiovascular and biotissue mechanics, bioinstrumentation, the physical and mechanical behavior of tissues treated as engineering materials, and the body's response to implant materials. Coupled with these efforts is a strong interest in the development and evaluation of artificial organs and other implantable devices and disposable models. Another area of interest is biomedical systems, including systems physiology and the use of computers in health-care delivery.
Chemical and Materials Engineering

Graduate Seminars and Advanced Topics

Chemical and Materials Engineering

Chair: Gregory P. Caruthers

Graduate students are required to attend these seminars and present a seminar each year. These seminars are designed to provide the opportunity to hear from experts in the field and to enhance the student's understanding of the latest research in the areas of chemical and materials engineering. Departmental seminars are held on Wednesdays at 12:00 PM in the Chemical Engineering Building. Additional seminars are held on Fridays at 3:00 PM in the Materials Science Building.

Undergraduate Program

The Bachelor of Science in engineering degree prepares the student for work in design, supervision, development, or sales. The curriculum includes extensive training in chemistry, a sequence of mathematics courses, and the courses in engineering core courses, which together provide a strong foundation. Undergraduate students have the opportunity to work with faculty members and graduate students on current research topics.

Curriculum

Sophomore Year
First Semester
2380 40 Matrix Algebra for Engineers 2 s.h.
2362 42 Vector Calculus for Engineers 3 s.h.
2570 40 Dynamics 3 s.h.
2571 41 Introduction to Electrical Science 3 s.h.
2572 40 Materials Science 3 s.h.
HUM 32 Humanities or social science elective 3 s.h.

Second Semester
2384 41 Differential Equations for Engineers 3 s.h.
5712 40 Linear Systems Analysis 3 s.h.
5720 40 Mechanics of Fluids and Transfer Processes 4 s.h.
5721 40 Process Calculations 3 s.h.
2578 40 Intermediate Engineering Physics I 3 s.h.

Junior Year
First Semester
4313 40 Physical Chemistry I 3 s.h.
2942 40 Intermediate Engineering Physics II 3 s.h.
5721 40 Principles of Reactors I 3 s.h.
5722 40 Principles of Reactors II 3 s.h.
5730 40 Optimization Techniques 3 s.h.
2579 42 Professional Seminar: chemical engineering 3 s.h.

Second Semester
4312 40 Physical Chemistry II 3 s.h.
6144 40 Physical Measurements 3 s.h.
5245 40 Chemical Engineering Thermodynamics 3 s.h.
5244 40 Mass Transfer Operations 3 s.h.
5291 42 Professional Seminar: Chemical Engineering 3 s.h.

Senior Year
First Semester
4201 40 Organic Chemistry I 3 s.h.
5240 40 Chemical Reaction Kinetics 3 s.h.
5280 40 Economics and Control in Design 3 s.h.
5247 40 Unit Operations Laboratory I 2 s.h.

Humanities or social science electives 3 s.h.
Graduate Programs

The Department of Chemical and Materials Engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Through course work and research, students gain an understanding of the principles of engineering science and then apply those principles to contemporary problems such as energy, environment, and materials. The emphasis is on research since most of the opportunities for graduates are in research and development. About one-third of the program is devoted to a research project, and a thesis is required for each degree.

All candidates in advanced degree programs are required to assist faculty members in teaching or research as part of the graduate training.

Research

The current research strengths of the Department of Chemical and Materials Engineering are in the areas of catalysis and reactor design, environmental contamination, particulate material processing sciences, separation science, bioprocessing, and biochemical engineering.

Catalysis and Reactor Design

Within the general field of kinetics, catalysis, and reaction engineering, research is being conducted in the areas of heterogeneous, homogeneous, and multiphase catalysis; gas-solid reactions; modeling and analysis of heterogeneous reactors; and design novel reactor-separators.

Environmental Contamination

Contamination of the environment in which we live and work is a major problem facing today's engineers. The Department of Chemical and Materials Engineering has had an active research program in the environmental areas of atmospheric air pollution, indoor air pollution, and hazardous waste. The faculty is continuing their research activity in air pollution while placing an increased emphasis on aerosol contamination of work environments and products with particular application to the microelectronics manufacturing industry.

Particulate Material Processing Sciences

Theoretical and experimental studies in morphological analysis of particulate materials are being conducted. Morphological analysis is concerned with the measurement of particle size, particle shape, texture, chemical properties, and physical properties. These methods are applied to particle formation processes and studies of particle and bulk behavior. Examples include wear debris analysis, crystallization and precipitation (formation processes), and dust explosions and contamination of particles (particle behavior).

Separation Science and Bioprocessing

Separation processes constitute a major portion of the plant operations leading to the production of finished chemical and biochemical products. Research at The University of Iowa is devoted to the development of new techniques as well as to obtaining a more fundamental understanding of the underlying physical-chemical principles involved in existing separation methods. The work is broad, interdisciplinary, and important for the future.

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 8 semester hours. However, 6 semester hours may be completed in residence at another recognized graduate college or through the Guided Correspondence Study Program at The University of Iowa.

The minimum course work requirement is 24 semester hours (about eight courses), and the remainder of the 30 semester hours may be devoted to research. To be eligible for the M.S. degree, the student is expected to maintain a minimum grade-point average of 3.0. Each M.S. degree candidate must defend his or her thesis at the final oral examination. Although it is possible to obtain an M.S. degree in one year, most students spend two to four semesters to complete the requirements.

Doctor of Philosophy

The Ph.D. degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, the candidate normally is expected to have completed three academic years of residence, or two years if he or she already holds a recognized master's degree. The minimum grade-point average required to complete at least 72 semester hours of graduate credit is 3.5. A Ph.D. candidate is expected to maintain a minimum grade-point average of 3.5.

All doctoral students are required to pass a written and oral 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 examining committee, it may consist of a written examination covering graduate work. These examinations are arranged by members of the examining committee. The examinations may be repeated. The rules for the comprehensive examination may be found 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 in this program is granted to students having a B.S. degree in chemical engineering with satisfactory grades from a recognized American college or university. Graduates of foreign universities also are accepted, depending on evaluation of their records. For the M.S. program, a grade-point average of at least 2.5 is required; for the Ph.D. program, a grade-point average of 3.0 is based on 12 or more semester hours of graduate work, or 2.7 based on the entire record of college credits if the student has less than 12 semester hours of graduate work. Conditional admission may be granted if the above requirements are not met and approval is obtained from the chair of the chemical and materials engineering department. A grade-point average of at least 2.3 is required or continuation of the application.

Applicants should take the verbal, quantitative, and advanced parts of the Graduate Record Examination (GRE) Aptitude Test, and scores of the test should be included in the application.

Graduate courses in chemical and materials engineering are designed for the student who has an undergraduate background in chemical engineering or the materials area. However, exceptional students from other areas also may apply for admission to the M.S. or even the Ph.D. program in chemical and materials engineering. Such students need to take certain undergraduate courses as background to allow them to perform in the graduate courses with minimum difficulty. These prerequisite undergraduate courses are in the nature of make-up courses and do not carry credit toward a graduate degree.
Financial Aid
A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core
Materials Science Laboratory
This laboratory is equipped with optical microscopes and facilities for metallurgical preparation, including a darkroom. Deformation testing instruments and hardness testing machines are also available. Heat treatment and sintering furnaces are available in a nearby laboratory. Teaching aids include metallography specimen kits, identification in LEF kits, and crystallization pack-ets.

Required Course Laboratories
Unit Operations Laboratory
This is primarily an instructional laboratory for senior undergraduate students. It involves experimentation in transport phenomenons, heat transfer, fluid flow, chemical engineering unit operations, and reaction kinetics and catalysis. The laboratory includes pilot plant equipment, such as distillation column interconnected with a microprocessor, wiped film evaporator, shell-and-tube heat exchanger, jacketed kettle, jacketed column for gas absorption, plate-and-frame filter presses, agitated extractor, and a cabinet dryer. Other equipment includes stirred-tank reactors, packed-bed reactor, centrifugal pump, gas chromatograph, reboilבח, mixing unit, and a variety of instrumentation for measuring flow, pressure, temperature, weight, etc. A small shop also is available in students for use under a technician's supervision.

Chemical Process Laboratory
This laboratory includes equipment for experimentation and controlling process variables such as flow, level, and temperature. Other equipment includes an analog computer, strip chart recorders, two microcomputers, and simple computer process controllers. The laboratory also makes use of remote computer terminals for acquiring control systems.

Graduate Facilities and Laboratories
To support and develop research activities the department offers a wide variety of facilities, equipment, and research equipment within and available to the department is listed below.

Computer Facilities
The departmental computer facilities contain a variety of graphics terminals, printers, and microcomputers. The terminals connect to the University's UNIX Computing Center, which makes available these computers IBM 3033, Prime 850, four Prime 750's, four RS/2000's and a VAX 11/780. They also provide access to the college's Computer-Aided Engineering Laboratory. The department is also connected to the Iowa Computer-Aided Engineering Network, which includes Apollo workstation augmented with Apple Macintosh 512K personal computers. In addition, the department has access to the University's central research facility in N2 Chemistry and the Chemistry Department computer facility. Facilities include a VAX 11/780 and CSPI 647 array processor and provides login links for access to super computers.

Surface Science and Catalysis Facilities
A variety of equipment is available for the study of catalysis. Techniques currently available include chemisorption and physisorption (RETS), thermometry, x-ray photoelectron spectroscopy, and high resolution transmission electron microscopy (HRTEM). In addition, the department has access to the University's central research facility in N2 Chemistry and the Chemistry Department computer facility. Facilities include a VAX 11/780 and CSPI 647 array processor and provides login links for access to super computers.

Materials Characterization Facilities
Facilities include an uniquely equipped laboratory for the characterization of powders and particulates. The laboratory contains a variety of testing and instrumentation in X-ray photoelectron spectroscopy, SEM/EDS, and Brunauer-Emmett-Teller and Coulter particle counters and size; and a Shape Analyzer for particle image analysis for morphological and textural determination.

Other facilities include sampling devices, devices for characterizing bulk properties; various testers, grinders, and screw equipment; optical microscopes, scanning microscopes, an electron microscope; a thermal conductivity and mass spectrometer; a gas chromatograph; a high pressure fluidized bed; and a reactor for the production of particles of specific size and shape. The laboratory also contains a fully controlled 2 liter cell for determination of dust explosibility and a Bruen and Kaiser fast Fourier acoustic analyzer. In addition, there is access to the University's Electron Probe Microanalysis and Electron Microscope Facilities.

There are also facilities available to study magnetic materials. These include techniques and clean facilities to characterize crystal growth, X-ray diffraction, and analytical techniques. In addition, the Hybrid Microelectronics Laboratory focuses on the study of ferromagnetic materials and computer engineering department provides capabilities in small scale microelectronics, chip and substrate manufacturing, including wafer trimming, photolithography apparatus, a laser beam trimming apparatus, and a variety of electronic testing instruments.

Separation Science and Biochemical Facilities
A variety of equipment is available for the study of separation processes. These include an Amtrack DCM feedwater system, a surface diffusion apparatus, equipment for lab-scale vacuum piston pumps, and continuous precipitation equipment. The laboratory is supported by several gas chromatographs, a Beckman ILP, a General Electric X-ray detector, an oxygen analyzer, a flame ionization analyzer, a Perkin-Elmer UV/VIS spectrophotometer, and a variety of other analytical equipment. The department also has general purpose pilot plant equipment for the study of evaporation, distillation, and solvent extraction.

Facilities include also a 50gallon fermentor, currently equipped with a Weightings digital balance and gas chromatograph and temperature and pH measuring equipment. There is also a 500 liter air-lift fermentor. Other equipment on campus supporting membrane-related facilities is the electrical and electronic laboratory, which is equipped with an amino acid analyzer, an automated sequencer, spectrophotometers, stopped-flow spectrometers, and analytical ultracentrifuge and rotors, the Fermentation Facility, equipped with an advanced cell sorter; and the Large Scale Fermentation Facility, equipped with a fully controlled and instrumented 10 liter and 100 liter fermenters.

Courses

Special Courses

52-060 Cooperative Education Teaching Assignment: Chemical Engineering 3 s.h.
Cooperative education participants in the Cooperative Education/Experiential program for this course are required to maintain an average grade of at least C. Students must attend all scheduled class meetings. Students enrolled in the cooperative education program must maintain a minimum overall cumulative g.p.a. of 2.0. Students must have a current, completed and signed experiential education form and a completed Cooperative Education Form and require approval by the local faculty advisor.
52-113 Process Calculations 3 s.h.
Solutions of industrial problems using graphical and numerical methods and use of computers. Graphical solution of chemical, heat transfer, and reaction problems. Use of process simulation software.
52-119 Chemical Engineering Thermodynamics 3 s.h.
Applications of thermodynamics to chemical and physical processes, measurement of material properties; principles of reaction and chemical equilibrium applied to...
Mass Transfer

42-44 Mass Transfer Operators

42-44-46 Equalization Stage Processes

42-44-50 Equalization Stage Processes

42-44-50 Diffusion Mass Transfer

42-44-50 Diffusion Mass Transfer

42-44-53 Separation Processes

Reactor Design Analysis

42-48 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design

50-56 Chemical Reactor Design
Civil and Environmental Engineering

Undergraduate Program
Civil engineering courses build on the College of Engineering core curriculum and are designed to give the student 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, hydraulic engineering, and transportation engineering.

Curriculum

Sophomore Year
First Semester
22M:42 Vector Calculus for Engineers
51:10 Dynamics
52:11 Introduction to Elementary Science
51:13 Materials Science
51:16 Thermodynamics I
Total: 16 s.h.
Second Semester
22M:41 Differential Equations for Engineers
51:19 Mechanics of Deformable Bodies
52:20 Mechanics of Fluids and Transfer Processes
52:18 Intermediate Engineering Physics I
*Humanities or social science elective
Total: 16 s.h.

Junior Year
First Semester
29:82 Intermediate Engineering Physics II
52:31 Principles of Design I
225:39 Probability and Statistics for Engineering and Physical Sciences
51:30 Soil Mechanics
52:34 Modern Structural Analysis
52:39 Professional Seminar: Civil Engineering
Total: 15 s.h.
Second Semester
52:30 Computer-aided Design I
52:32 Principles of Design II
53:31 Design of Steel Structures
52:37 Principles of Hydraulics
52:36 Elements of Surveying
53:91 Professional Seminar: Civil Engineering
*Humanities or social science elective
Total: 17 s.h.

Senior Year
First Semester
52:36 Reinforced Concrete
52:32 Transportation Engineering
52:39 Habits
52:39 Professional Seminar: Civil Engineering
*Humanities or social science elective
Total: 15 s.h.
Second Semester
52:38 Project Design and Management in Civil and Environmental Engineering
52:38 Experiments in Civil and Environmental Engineering
52:39 Professional Seminar: Civil Engineering
Technical electives
*Humanities or social science elective
Total: 17 s.h.

Graduate Program
The graduate program in civil and environmental engineering at both the M.S. and Ph.D. levels is designed to prepare students for professional careers and research. The principal areas of concentration are environmental engineering and science; hydraulic and water resources; structures; environmental systems; and transportation.

Environmental Engineering and Science
The environmental engineering curriculum has two basic streams: one engineering and the other applied science. This curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on the campus, including the Iowa Institute of Hydraulic Research, the Institute of Agricultural Medicine and Occupational Health, and the colleges of Business, Law, and Liberal Arts. Course work and research permit a general program of study or specialization in one of these areas: water quality, water and wastewater treatment, or solid and hazardous waste management.

Hydraulics and Water Resources
The hydraulics and water resources curricula are associated with the Iowa Institute of Hydraulic Research, a laboratory that is world renowned. The senior staff members of the institute are professors in the program; they devote about half of their time to teaching. The institute offers unique opportunities for
students to participate actively in the research, analysis, and design aspects of real-world problems. Considerable attention is given to the use of digital computers in mathematical modeling and in the acquisition and processing of data. The water resources curriculum also has ties to the Institute for Economic Research and the colleges of Business, Law, and Liberal Arts.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula may be directed towards design, analysis, research, or consultative aspects of these. Special strengths exist in the areas of close-dependent behavior of reinforced and prestressed concrete structures, optimal design of structural systems, computer-aided design, and behavior, and constitutive equations for metals and geotechnical materials. Course work and research in structural analysis, structural design, soil mechanics, and translations, optimal design, and mechanics of materials are available.

Transportation

The transportation curriculum includes work in planning, design, construction, and operation of transportation systems and facilities. Cooperative relationships exist with the graduate programs in urban and regional planning and transportation studies. (See "Urban and Regional Planning" and "Transportation Studies" in the "College of Liberal Arts" section of the Catalog.)

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the areas or areas of the student's choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and projected demand for M.S. graduates is excellent.

In general, the path of study, with or without thesis, must include a minimum of 30 semester hours credit with at least 5 semester hours of credit allowed for the thesis. An additional 3 semester hours are required in the nonthesis option.

Each student, with the approval of his or her advisor, develops a plan of study that satisfies special requirements of the curriculum chosen by the student.

All candidates for the degree are expected to have a minimum grade point average of 3.0 on a scale of 4.0 and must pass written and oral examinations.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements for all and for specific modes of study vary among the specialty areas. The candidate normally will need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation that contributes to knowledge in the field. In some specialty areas, a qualifying examination is required during the second semester for students who have not earned an M.S. in an approved curriculum.

All doctoral students are required to pass a written and oral comprehensive examination before formal admission to candidacy for the degree is granted. This examination normally is taken when substantially all of the student's course work has been completed.

The program culminates in a final examination, in which the candidate must successfully defend his or her dissertation.

Doctoral candidates are expected to maintain a grade point average of 3.0 throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in Applied Mathematical Sciences (see the "Division of Mathematical Sciences" in the "Liberal Arts" section of the Catalog).

Admission

Each curriculum of the program is quite flexible; students may be admitted to all disciplines of engineering as well as from the mathematical and basic sciences.

An applicant for the master's degree program is expected to have a cumulative undergraduate grade-point average of at least 2.5. 3.0 is preferred. For admission to candidacy for the doctorate, the minimum grade-point average is 3.2, based upon previous graduate work. Applicants whose grade-point averages are slightly lower are invited to correspond regarding admission possibility.

All applicants must meet the general admission requirements of the Graduate College (see "Graduate College" section of the Catalog).

Financial Aid

A significant number of research assistantships are available on a variety of research projects, as are a limited number of teaching assistantships. Selection of recipients usually is based on scholastic achievement and research interest.

Special Facilities and Laboratories

Undergraduate Instruction

The freshman engineering course 571, Introduction to Engineering includes an introduction to the Iowa Computer-Aided Engineering Network (IACEN), which is described under "College Facilities." Students in the course learn word processing on Macintosh microcomputers and elementary graphics using Apollo workstations. Students are also exposed to the course Principles of Design I make extensive use of the computer hardware and software available through the Computer-Aided Engineering Laboratory, which is described in the earlier section entitled "College Facilities." For information about laboratories affiliated with core- or interdepartment laboratories, see this section for each of the other laboratories.

Elective Courses, Facilities, and Laboratories

The soils laboratory is equipped for determining the classification, seepage characteristics, stress-strain properties, and strength of soils.

Experiments in Civil and Environmental Engineering

This laboratory course consists of experiments in the hydraulics, environmental, and structures area. It is offered at the Hydraulics Laboratory, for Environmental Engineering Laboratory, and the Materials Laboratory as a survey course with hands-on experimentation.

Principles of Environmental Engineering

The Environmental Engineering Laboratory and University Water Treatment Plant are used for demonstrations of unit operations and processes of water treatment and concepts in environmental chemistry and microbiology.

Environmental Chemistry Laboratory

The laboratory for environmental chemistry is a part of the Environmental Engineering Laboratory. Standard water and wastewater quality tests are conducted and bench-scale unit processes are operated and analyzed.

Iliolognaly

The laboratory for Iliolognaly is a part of the Environmental Engineering Laboratory. Typical aquatic organisms are studied in the laboratory and several field exercises are conducted on area streams and lakes.

Graduate Facilities and Laboratories

Environmental Engineering and Science Laboratory

Research in environmental engineering is conducted in the department's Philip F. Morgan Junior Engineering Research Laboratory at the Iowa City Municipal Wastewater Treatment Plant, and in the Environmental Engineering Laboratory at the U.S. Army Engineer Water Treatment Plant. The Morgan laboratory is devoted to research activities in the wastewater.
35:171 Theory and Practice of Hydraulic Modelling 2 s.h.

35:174 Hydrology 3 s.h.
Water resources development, streamflow simulation, evaporation, precipitation, infiltration, groundwater, hydrograph, runoff relations, stream hydrograph, drainage problems, flood routing, frequency, intensity and duration studies of sources, floods, and droughts, watershed modeling, urban hydrology. Preparation: Preparatory: 35:171.

35:175 Water & Wastewater Systems 3 s.h.
Application of basic engineering sciences including probability theory, statistics, theory of operations, optimization, computer applications to the analysis and design of systems for the collection, storage and distribution of water and effluent from a variety of sources. Preparatory: 35:171.

35:276 Coastal Hydrodynamics 3 s.h.

35:277 Hydraulic Transports 3 s.h.
Vectors flow in closed circuits, method of characteristics, currents caused by gravitational forces, transport in porous plastic, resonance, transient calculations, surge tank, transients in open channels, Preparatory: Preparatory: 35:171.

35:278 Environmental Dispersive Processes 3 s.h.
Review of classical diffusion theory, biological, chemical, thermal and vertical mixing in flow Yellow and Greenhoe, spreading of a plume in a flowing medium. Selected topics including solute in the atmosphere, rainfall and dispersal of industrial effluents. Preparation: Preparatory: 35:171. Same as 75:203.

35:279 Computational Hydrodynamics 3 s.h.
General fluid and solid mechanics, one-dimensional and two-dimensional problems, steady, unsteady, and transient problems in compressible and incompressible fluids, numerical methods for solution of the Navier-Stokes, and Euler's equations. Preparation: Preparatory: 35:171.

35:278 Viscous Flow 3 s.h.
Vorticity, flow structures, low and high-Reynolds number flows, Euler's equations. Preparatory: Preparatory: 35:171. Same as 35:178.

35:279 Advanced Water Resources 2 s.h.
Continuation of 35:171. Emphasis on application to basic sciences and the environment in areas such as sedimentology, economic optimization and simulation, reserve analysis, reservoir management, river basin analysis, and river basin management. Preparation: Preparatory: 35:179.

35:181 Graduate Seminar: Fluid & Environmental Engineering 3 s.h.
Presentation and discussion of recent advances and research in fluid and environmental engineering. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

35:182 Controversies in Fluid & Environmental Engineering 2 s.h.
New topics and areas of study not formally offered to students. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

35:183 Individual Investigation: Fluid & Environmental Engineering 2 s.h.
For students pursuing a special interest in fluid and environmental engineering. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

35:184 Research: Fluid & Environmental Engineering, M.A. Thesis 2 s.h.
Examination and statistical investigation of an approved topic for partial fulfillment of requirements for the M.A. degree with major emphasis in fluid and environmental engineering. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

35:185 Research: Fluid & Environmental Engineering, Ph.D. Dissertation 2 s.h.
Examination and statistical investigation of an approved topic for partial fulfillment of requirements for the Ph.D. degree in civil and environmental engineering. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

Electrical and Computer Engineering

35:189 Introduction to Electrical and Computer Engineering 3 s.h.

35:191 General Seminar: Civil and Environmental Engineering 2 s.h.
Preparation for and discussion of recent advances and research in civil and environmental engineering. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

35:192 Controversies in Civil and Environmental Engineering 2 s.h.
New topics and areas of study not formally offered to students. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

35:193 Individual Investigation: Civil and Environmental Engineering 2 s.h.
For students pursuing a special interest in civil and environmental engineering. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

35:194 Research: Civil and Environmental Engineering, M.A. Thesis 2 s.h.
Examination and statistical investigation of an approved topic for partial fulfillment of requirements for the M.A. degree with major emphasis in civil and environmental engineering. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

35:195 Research: Civil and Environmental Engineering, Ph.D. Dissertation 2 s.h.
Examination and statistical investigation of an approved topic for partial fulfillment of requirements for the Ph.D. degree in civil and environmental engineering. Preparation: Preparatory: 35:171. EUPhysics minor or graduate standing

Undergraduate Program

The Electrical and Computer Engineering Program provides a strong background in basic electrical and computer engineering subjects, physics, mathematics, and allows for concentration in several areas through five technical elective courses usually taken in the senior year. A student can concentrate in one or more areas among computers, control, communication, electronics, and applied physics.

Curriculum

Sophomore Year

First Semester
57:110 Dynamics 3 s.h.
57:164 Differential Equations for Engineers 3 s.h.
57:166 Thermodynamics 4 s.h.
57:153 Materials Science I 3 s.h.
57:111 Introduction to Electrical Science 3 s.h.
Total 16 s.h.

Second Semester
52:21 Intermediate Engineering Physics I 3 s.h.
52:22 Vector Calculus for Engineers 3 s.h.
57:112 Linear Systems Analysis 3 s.h.
57:199 Principles of Electronic Instrumentation 4 s.h.
57:211 Introduction to Computers in Electrical Engineering 3 s.h.
Total 16 s.h.

Junior Year

First Semester
52:22 Intermediate Engineering Physics II 3 s.h.
225-35 Probability and Statistics for Engineering and Physical Science 3 s.h.
55:32 Introduction to Digital Design 3 s.h.
55:40 Electronic Circuits 3 s.h.
55:42 Signals and Systems 3 s.h.
55:91 Professional Seminar: Electrical Engineering 0 s.h.
Total 15 s.h.

Second Semester
55:33 Introduction to Software Design 3 s.h.
55:43 Information Systems 3 s.h.
55:60 Control Theory 3 s.h.
55:70 Electromagnetic Theory 3 s.h.
55:84 Principles of Electrical Engineering Design I 3 s.h.
Humoristics or Social Science elective 3 s.h.
Total 18 s.h.

Graduate Seminars, Advanced Topics, and Research
Senior Year
First Semester
55.82 Electrical Engineering Principles of Electrical Engineering Design II 3 s.h.
55.82 Principles of Electrical Engineering Design II 2 s.h.
55.81 Professional Seminar: Electrical Engineering 3 s.h.
**Technical electives 6 s.h.
Humanities or social science electives 6 s.h.
Total 17 s.h.

Second Semester
55.86 Principles of Electrical Engineering Design III 2 s.h.
25XX Modern Physics 3 s.h.
Technical Electives 3 s.h.
Humanities or social science elective 4 s.h.
Total 15 s.h.

*Professional Seminar must be taken once in the junior year and once in the senior year.

**Technical electives must include at least two of the following:
55.68 Power Systems Analysis 3 s.h.
55.130 Switching Theory 3 s.h.
55.137 Microcomputer-Based Systems 3 s.h.
55.238 Fault Tolerant Computing 3 s.h.
55.140 Elements of Thin-film 3 s.h.
Thin-Film Microelectronics 3 s.h.
55.141 Power Electronics 3 s.h.
55.142 Introduction to VLSI Design 3 s.h.
55.143 Linear Integrated Electronics 3 s.h.
55.144 Digital Integrated Electronics 3 s.h.
55.146 Digital Signal Processing 3 s.h.
55.148 Digital Image Processing 3 s.h.
55.150 Communication Theory 3 s.h.
55.152 Introduction to Information and Coding Theories 3 s.h.
55.150 Control Theory 1 s.h.
55.156 Computer Based Control Systems 3 s.h.
55.155 Introduction to Robotics 3 s.h.
55.172 Solid State Physics 3 s.h.
55.173 Optics 3 s.h.
55.175 Ultrasonic Signal Processing 3 s.h.
55.176 Optical Signal Processing 3 s.h.

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

Graduate Program

Electrical and computer engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Thesis and non-thesis M.S. programs are available, and either may require Ph.D. studies. Excellence in scholarship and research is stimulated by close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs.

Each student selects an adviser and, with the adviser, plans an individual program bounded only by a few basic guidelines imposed by the Graduate College and by the program. Close interdisciplinary liaison with other departments exists both within and outside the college, especially with the departments of internal medicine, radiology, physics, computer science, and biomedical engineering. The principle areas of concentration are waves and materials, computer systems, signal and image processing, and statistical and computer-based control systems, each of which is briefly described here.

Waves and Materials
Phases, plasma, electron-optics, and acoustics invest computer architecture in both the Engineering structure and Van Allen Hall. Collaborative research with the physics department is directed toward topics in nonlinear plasma physics of a theoretical and experimental nature. These topics include plasma confinement and stability and microwave plasma phenomena, such as solitons and shocks. A plasma physics laboratory is available to support this activity. An electron-optic laser laboratory and an ultrasonic laboratory are used for conduct basic research in the areas of optical-acoustics, especially acousto-optics, surface acoustic waves, and nonlinear wave phenomena in ultrasonics. The hybrid microwaveoptoelectronic laboratory is available to address the active components in this area. Topics of interest include acousto-optics, acoustic ultrasonic solitons, parametric phenomena, electro-optic signal processing, and SAW devices.

Computer Systems

Research emphasis is directed toward highly reliable and distributed computing. Areas of interest include parallel computing, multiprocessor computing, distributed systems, computer architecture, computer design, and computer and network systems. This work is supported by the availability of a computer network, minicomputer facilities, and VLSI design software. Current projects include validation of ultra-reliable computing systems, design of highly survivable computer systems, fault-tolerance in multiprocessor systems, and design of easily testable, very large scale integrated circuits. Close collaboration with the Department of Computer Science are maintained.

Signal and Image-Processing
Cuaroridivols signal and image processing, signal processing associated with speech and hearing, estimation theory, and adaptive signal processing currently constitute a creative area. Collaborative efforts involve the departments of biomedical engineering, computer science, and the College of Medicine. A digital signal processing laboratory and a biomedical and laser image processing laboratory, the latter located at the cardiovascular center in the University Hospital, are available to support this research. Recent problems include image processing, detection of cardiac motion, recognition and spectral analysis of speech, detection of R.E.G. edge detection, array signal processing with applications in sonarology, and development of hardware and software techniques for the acquisition and processing of images in polar coordinates.

Stochastic and Computer-Based Control Systems

Current research emphasizes optimal control, learning and adaptive control, self-repairing systems, digital control, and robotics. Work in this area involves both the exploitation and simulation of stochastic processes to problems in control and communication systems such as radar estimation, identification, adaptive filtering and control for stochastic dynamical systems.

Master of Science

There are two M.S. degree options: an M.S. with thesis and an M.S. without thesis. The thesis option requires 36 semester hours of course work, including at least 12 semester hours from an approved list of courses in electrical and computer engineering. The non-thesis option requires 36 semester hours of course credit, with a minimum of 31 semester hours from an approved list of courses in electrical and computer engineering.

In the electrical and computer engineering, the M.S. semester-hour requirements do not include courses required for electrical engineering undergraduate. With thesis, up to eight semester hours of the 30 semester hours may be research credit. At least six semester hours of credit must be earned in 55.199 Research in Electrical and Computer Engineering, M.S. Thesis by students in the thesis option. Without thesis, a total of not more than 3 semester hours of independent study credit may be earned in the 36 semester-hour total.

The candidates for the Master of Science degree in electrical and computer engineering must successfully complete a final examination, which is conducted by a committee of at least three faculty members. One part the final examination for these candidates must consist of an oral defense of the thesis. At the time of graduation, the candidate for the master's degree must have acquired a cumulative grade-point average of 3.00 or higher.

Doctor of Philosophy

Requirements are:

Selection of a program adviser and filing of a tentative plan of study with the program during the first year.

At least 72 semester hours of credit in a coherent program approved to the adviser and approved by the graduate
Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core
Electrical and computer engineering provides core instruction for the college in systems, electrical circuits, and electronics. A key part of this core teaching responsibility lies in providing the students of the college with their first experience with engineering laboratory instrumentation. The electronics laboratory facilities are equipped with oscilloscopes, signal generators, analog and digital broadbanding equipment, and a variety of measuring instruments.

Required and Elective Course Laboratories
The undergraduate laboratories consist of the traditional electronics laboratories plus special laboratories for microcomputers, minicomputers, and construction of hybrid solid state devices.

Graduate Facilities and Laboratories
The department has excellent computing facilities supported by two VAX 750 systems with large RAM and disc storage, five Apollo work stations—two of which are color, a PDP 11/74, a VAX 720 system, and several Macroetch personal computers. Over thirty diphraphamic and graphics terminals (including high resolution smart color terminals) are available for accessing departmental, college and University computer systems. Several laser printers and two electronic plotters are available for reproduction of high quality hard copy.

Courses

Special Courses
55-809 Cooperative Education Training Elective Engineering
Electrical engineering systems participating in the Cooperative Education Program register in this course during work assignment periods, regardless of whether or not they are required to work during the specified period. Fee: $40 for credit. No prerequisites. Prerequisite: 15-201.
54-84 Principles of Electrical Engineering Design I
Several design problems in electrical engineering with emphasis placed on logic design and analysis of standard circuits, advanced analogies, and operational amplifier devices. Includes design, analysis, and testing of both linear and non-linear circuits. Requires evaluation of design techniques. Minimum computer experience assumed. Prerequisites: 54-205 and 54-219.
55-85 Principles of Electrical Engineering Design II
Design problems requiring interaction of support systems from other engineering schools. Prerequisite: 55-446. Computer, 55-305, 55-320, and 55-341.
55-86 Principles of Electrical Engineering Design III
Test design review, individual or group project of student choice. Requires demonstration of the completed project and a formal engineering report. Prerequisite: Consent of instructor.
55-87 Professional Practice in Electrical Engineering
Familiarizes students with electrical engineering procedures used in industrial practice through lectures and discussions, group projects, field trips, tours, and panel discussions of topics of current interest. May be repeated. Prerequisite: professional standing.
55-88 Industrial Investigations in Electrical Engineering
Individual projects for electrical engineering undergraduate students such as a laboratory study, engineering design project, analysis and innovation of an engineering systems, computer software development, research, etc. Prerequisite: consent of an engineering faculty advisor.

Digital Systems and Computers
55-21 Introduction to Computers in Engineering
Introduces engineering students to the digital domain fundamental to computers. Includes computer programming concepts and assembly language programming. Introduces applications of computers to engineering problems. Lab arranged. Prerequisites: 34-74 and 44-84 in engineering mathematics.
55-22 Introduction to Digital Design
Modern design and analysis of digital systems (circuits, combinational logic, sequential circuits) and microprocessors. Tracing the evolution of digital logic, emphasis on circuit design and troubleshooting techniques. Transistor-level and gate-level component circuitry. Lab arranged. Prerequisites: 35-15 and 35-21 or 35-25.
55-23 Introduction to Software Design
Introduces BASIC programming language, algorithm design and structured programming. Introduction to data structures and their use. Design and use of computer based programs. Prerequisites: 35-15 and 35-21.
55-24 Switching Theory
Switching theory and applications of logic network classification, logic arrays, and basic truth table testing of combinational logic. Design techniques for basic testing of combinational logic. Basic design techniques for sequential logic. Advanced design. Prerequisites: 35-15 and 35-21 or 35-25.
55-25 Introduction to Microprocessors
Introduces technical fundamentals of microprocessor-based systems, digital and analog circuit design, microprocessor interfacing, assembly language programming, computer applications with microcomputers, operating system, and peripherals. Lab arranged. Not intended for majors in electrical and computer engineering. Prerequisites: 34-74.
55-26 Computer Organization
A comprehensive study of digital computers including digital electronics, memories, microprocessors, computer architecture, instruction set architecture, addressing modes, computer peripheral interface design; computer architecture, input/output operation, microprocessors, computer peripheral interface design; computer architecture, input/output operation, microprocessors, instruction set architecture, addressing modes, input/output operation, memories, and computer organization. Prerequisites: 35-15 and 35-21 or 35-25.
55-27 Computer Communication Systems
Computer-based, 35-200, select computer systems, computer networks, and communication systems. Explores the hardware and software engineering applications of communication systems, including the use of local area networks, spreadsheets, and other communications, computer networks, and communication systems applications. Prerequisites: 35-15 and 35-21.
55-28 Microcomputer-Based Systems
Designs and applications of microcomputers and microprocessor systems for control, data acquisition, and analog-to-digital conversion systems. Includes general purpose and dedicated microprocessor systems. Prerequisites: 35-15 and 35-21.
55-29 Fault Tolerant Computing
Logic circuits for fault tolerant designs. Includes fault tolerant design techniques for serial and parallel logic circuit design, testability, fault tolerant design, and computer systems software. Prerequisites: 35-15 and 35-46.
55-30 Advanced Switching Theory
Advanced study of switching theory and applications to combinational and sequential logic. Prerequisite: 35-24. Course content covers advanced switching theory, logic design, and computer systems. Prerequisites: 35-15 and 35-21.

Financial Aid
A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.
Controls

5.2.4.4 Control Systems


5.2.4.5 Digital Control Systems


5.2.1.5 Statistical Communication Theory

Introduction to probability and random variables. Estimation and detection theory. Information theory. Waveforms and their statistical properties. 

5.2.1.6 Introduction to Information and Coding Theories


5.2.1.7 Communication Theory

An introduction to communication theory. Basic concepts of information and communication. Signal detection and estimation. Information theory and coding. Communication systems. 

5.2.1.6 Linear and Non-Linear Waves

Waves and their propagation. Waves of water, seismic, radio, and telecommunications. 

5.2.1.7 Solid State Physical Electronics


5.2.1.8 Waves

Wave propagation and wave phenomena. 

5.2.2.1 Waves

Waves, their propagation, and interactions. 

5.2.2.2 Waves

Waves and their propagation. 

5.2.2.3 Waves

Waves and their propagation. 

5.2.2.4 Waves

Waves and their propagation. 

5.2.2.5 Waves

Waves and their propagation. 

5.2.2.6 Waves

Waves and their propagation. 

5.2.2.7 Waves

Waves and their propagation.

5.2.3.1 Waves

Waves and their propagation. 

5.2.3.2 Waves

Waves and their propagation. 

5.2.3.3 Waves

Waves and their propagation. 

5.2.3.4 Waves

Waves and their propagation.

5.2.3.5 Waves

Waves and their propagation. 

5.2.3.6 Waves

Waves and their propagation. 

5.2.3.7 Waves

Waves and their propagation.

5.2.4.1 Waves

Waves and their propagation. 

5.2.4.2 Waves

Waves and their propagation. 

5.2.4.3 Waves

Waves and their propagation. 

5.2.4.4 Waves

Waves and their propagation. 

5.2.4.5 Waves

Waves and their propagation. 

5.2.4.6 Waves

Waves and their propagation. 

5.2.4.7 Waves

Waves and their propagation.
Joint Program with Urban and Regional Planning
A cooperative program between Engineering and the Urban and Regional Planning Program is available for students who are interested in technologically oriented positions in the public sector. These positions usually require a blend of civil and industrial engineering and policy analysis courses. Examples of positions for which a background of this type is advantageous are employment in public sector agencies such as utilities, economic development groups, land developers, public works departments, or corporate long-range planning departments. For more information see Urban and Regional Planning in the Liberal Arts section of this catalog; also see the earlier section titled "Combined B.S. in Engineering-M.S. Planning Degree Program."

Joint Engineering/M.B.A. Program with the College of Business Administration
The colleges of Business Administration and Engineering have initiated a program that allows superior undergraduate students to begin course work required for a master's degree in business administration while completing the requirements for an undergraduate degree in engineering. The course of work of the two disciplines allows the student to prepare for positions requiring both technical and managerial skills. The student can complete both programs in the years. For more information see "Combined College of Business Administration" section of the catalog and the earlier section titled "Combined College of Engineering-M.B.A. Program."

Curriculum

Sophomore Year
First Semester
22M:41 Differential Equations for Engineers 3 s.h.
57:16 Thermodynamics I 4 s.h.
57:11 Introduction to Electrical Science 3 s.h.
57:15 Materials Science 3 s.h.
57:10 Dynamics 3 s.h.
Total 16 s.h.

Second Semester
22M:42 Vector Calculus for Engineers 3 s.h.
57:12 Linear Systems Analysis 3 s.h.
57:19 Mechanics of Deformable Bodies 3 s.h.
57:38 Principles of Electronic Instrumentation 4 s.h.
22M: Intermediate Engineering Physics I 3 s.h.
Total 16 s.h.

Junior Year
First Semester
22M:59 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
29:82 Intermediate Engineering Physics II 3 s.h.
57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
57:21 Principles of Design I 3 s.h.
*Humanities or social science elective 3 s.h.
Total 16 s.h.

Second Semester
29:83 Modern Physics 3 s.h.
57:32 Principles of Design II 3 s.h.
57:14 Engineering Economy 3 s.h.
Technical elective 3 s.h.
*Humanities or social science elective 4 s.h.
Total 16 s.h.

Senior Year
First Semester
Design course 3 s.h.
*Humanities or social science elective 3 s.h.
Total 18 s.h.

Second Semester
Design course 3 s.h.
Technical elective 3 s.h.
*Humanities or social science elective 3 s.h.
Total 15 s.h.

*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

Industrial and Management Engineering

Chair: James J. Clark
Professors: James J. Clark, John M. Luchtefsen, John G. Black
Associate professors: James H. Hunk, Gary W. Fichter
Associate professor emeritus: Edward M. Nichol
Assistant professors: Mary C. Rice, Mark R. Decker

Industrial and management engineering is concerned with the analysis, design, and implementation of systems involving the optimal use of resources—human, material, energy, information, and financial. The systems involved may range from small subsystems to extremely large systems. In
order to accomplish these varying activities, the industrial and management engineer is skilled in mathematics, physical sciences, management, and human relations, as well as in computer systems, economics, optimization, human behavior, and systems analysis and design. Both the undergraduate program in industrial engineering and the graduate program in industrial and management engineering are designed to provide courses in these areas, while offering the student an opportunity to specialize sufficiently in an area of choice.

The industrial and management engineer has many opportunities for employment and service in industrial, governmental, research, and public service organizations. Employment opportunities are among the most varied in the engineering field. The industrial and management engineer may hold a position as an adviser to management or may participate directly in management decisions. Representative jobs include industrial engineer, systems analyst, quality engineer, operations research analyst, internal consultant, human factors engineer, super-visor, or manager. The industrial and management engineer may be employed by manufacturing firms, a government agency, or a service organization such as an airline, bank, or hospital.

Undergraduate Program

The curriculum in industrial engineering requires a strong foundation of courses in engineering science, mathematics, physical sciences, social sciences, and humanities. Advanced courses include operations research, production, production operations, research, reliability, human factors engineering, and information systems.

Curriculum

Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>5710 Dynamics</td>
<td>5712 Linear Systems Analysis</td>
</tr>
<tr>
<td>5711 Introduction to Electrical Science</td>
<td>5714 Engineering Economy</td>
</tr>
<tr>
<td>5712 Materials Science</td>
<td>22MM41 Differential Equations for Engineers</td>
</tr>
<tr>
<td>Total</td>
<td>15 h.</td>
</tr>
</tbody>
</table>

Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>5910 Professional Seminar: Industrial Engineering</td>
<td>5713 Manufacturing Processes</td>
</tr>
<tr>
<td>5911 Manufacturing Processes</td>
<td>5721 Principles of Design I</td>
</tr>
<tr>
<td>22539 Probability and Statistics for Engineering and Technical Sciences</td>
<td>2882 Intermediate Engineering Mathematics II</td>
</tr>
<tr>
<td>5912 Human Factors, Engineering Psychology and Economics</td>
<td>Total</td>
</tr>
<tr>
<td>Total</td>
<td>18 h.</td>
</tr>
</tbody>
</table>

Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>5910 Professional Seminar: Industrial Engineering</td>
<td>5918 Principles of Systems Design</td>
</tr>
<tr>
<td>5919 Information Systems Design</td>
<td>5717 Principles of Systems Design</td>
</tr>
<tr>
<td>5920 Operations Research</td>
<td>5722 Principles of Design II</td>
</tr>
<tr>
<td>Total</td>
<td>16 h.</td>
</tr>
</tbody>
</table>

Graduate Programs

Industrial engineering students are tailored to meet the needs of the individual. Each student's program of study is based on his or her background, career objectives, and sound academic practice. The curriculum is highly flexible; the goal is academic excellence.

There are two principal areas of academic focus in the graduate program of industrial and management engineering: manufacturing, human factors engineering, and management engineering, quality and production control, and information and computer science research and applied statistics.

Manufacturing courses, devoted by the 30 series, delve into the selection of appropriate materials, planning of processing operations, devising of control strategies, and the design of manufacturing systems. Contemporary topics in computer-aided planning and design, as well as computer-controlled manufacturing, are covered.

Human factors courses concentrate on applying the psychological, physiological, and sociological sciences to problems in manufacturing and service systems. These problems concern the job and the organization to the people who perform those jobs within the organization as well as managing and motivating people. Courses in the 40 series cover these topics.

Information and computer science courses concentrate on computer-aided systems, computer-aided programming systems, software design, administration, and engineering economics, as covered by courses in the 50 series.

The quality and production control area consists of facilities design, quality assurance, reliability, and production control. This area of concentration is covered by courses in the 60 series.

Studies in operations research and applied statistics concentrate on mathematical, statistical, and computer science for modeling, analyzing, and optimizing systems. Various methodologies in this area include industrial and management engineering.
include mathematical programming, statistical optimization, linear analysis, and digital systems simulation. Courses in the 7th series cover these topics.

Many graduate students tend to focus on one of these specialty areas, while others dilute their studies over two or even all five areas.

Students in the graduate program participate in research in the areas of their academic concentration. Ongoing manufacturing research consists of feasible manufacturing systems, design, optimum control of processing paths, adaptive manufacturing control, parametric robotic control, and automatic pattern recognition of parts. Current research in human factors engineering economics consists of investigating the effects of visual and auditory information on human information processing, performance time statistics with cognitive tasks, and the effects of aging on human performance. Other ergonomic research is directed to use of digital simulation to solve human work, load problems, industrial inspection, computer-aided human problems solving, and techniques of ergonomic data collection and analysis.

Some current research in information and engineering management consists of information economics, health risk assessment for medical resource allocation, economics of parallel processing, entrepreneurism, governmental reorganization, econometric analysis, and methods of identifying accident causation through incidence data, strategic management, and economic risk analysis. Quality and production control research is currently focused on computer-aided layout and scheduling, material handling system, location and allocation of automatic inspection, on-line expert systems, and creation of an inventory record accuracy-assurance procedures. Ongoing research in operation research and applications includes data optimization, expert systems in scheduling and dispatching, simulation and random number generation, and the development of programming techniques for discriminate classification problems. Other research is directed toward developing the capabilities of computer graphics.

Master of Science

Two M.S. programs are available: a thesis and a non-thesis program. Students considering eventual admission to a Ph.D. program should elect the thesis option. The M.S. thesis option requires a minimum of 39 semester hours of course work in 100- or 200-level courses, including at least 6 semester hours of research. Students who elect the non-thesis option must complete a minimum of 39 semester hours of course work at the 100 or 200 level, including at least 18 semester hours at the 200 level or at the 100 level with the designation "advanced" or "contemporary topics" in 5 course title. A tentative plan of study for each student is determined through consultation with his or her advisor; the final plan of study is reviewed by the student's advisory committee and approved by the industrial and management department's graduate chair and the Graduate College dean.

Entering students in all programs need a background in computer programming, probability, statistics, and mathematics equivalent to that required in accredited undergraduate engineering programs. Both verbal and written skills in the English language are essential. Engineering management and human factors students will find psychology and engineering economics to be useful preparation. Compensation for course work may be required for students with nonscientific backgrounds.

The student is required to maintain a minimum grade-point average of 3.0 on all graduate course work (both 100- and 200-level courses) at The University of Iowa to be eligible for the M.S. degree. The nature of the final examination will be specified by the examining committee. It may consist of both written and oral parts. The examination will explore the student's course preparation and/or an appropriate individual investigation.

Doctor of Philosophy

Typically, Ph.D. programs in industrial and management engineering require at least 72 hours of study, including research for the dissertation. Admission requirements and specific requirements above this lower limit are specified by the student's advisory committee. Part of the Ph.D. study is directed to research in an area of interest. There is no foreign language requirement or special requirement for research techniques. Admission to degree candidacy requires a minimum grade-point average of 3.5 on all graduate work taken at The University of Iowa and the demonstration of a capacity for independent achievement, upon completion of the coursework work specified by his or her advisor and advisory committee. The student is required to pass an oral comprehensive examination, which includes both written and oral parts. Part of this examination usually will include the presentation of a dissertation proposal, so that the advisory committee can evaluate the student's academic preparation in light of the research to be performed. Upon satisfactorily completing this examination, the student is accepted as a candidate for the Ph.D. and normally is required to complete and defend the dissertation.

Admission

Students with an M.S. objective may be admitted from an A.B.TE accredited baccalaureate curriculum in any engineering discipline or in the mathematical or physical sciences with a minimum grade-point average of 3.5 and an acceptable score on the Graduate Record Examination (GRE) Aptitude test (typically, at least 600 verbal, 650 quantitative). Applicants from non-U.S. institutions must meet equivalent conditions for regular admission. Students may be matriculated under conditional admission with a lower grade-point average and lower GRE Aptitude Test scores.

Students from business or social science programs who have adequate mathematical preparation also may be considered for regular or conditional admission. The student on conditional status must achieve regular status within two assistantships of registering for an average of at least 3.0 and gaining regular acceptance by the industrial and management engineering department faculty. Otherwise the student will be dismissed.

Admissions are limited by the number of faculty and other available resources.

Students with a Ph.D. objective may be admitted from an A.B.TE accredited baccalaureate or a post-baccalaureate curriculum in any engineering discipline or in the mathematical and physical sciences with a minimum grade-point average of 3.5 and an acceptable GRE Aptitude Test score (typically, at least 500 verbal, 200 quantitative). Applicants from outside the United States must have an equivalent basis for regular admission as determined by the University of Iowa. Students also may be admitted from business or social science programs as determined on an individual basis. Students with a Ph.D. objective and a B.S. degree or an M.S. degree without thesis usually are first admitted to the M.S. program. All admission requirements for the program are approved by the faculty as a committee of the whole.

Financial Aid

A number of one-quarter-time and one-half-time graduate assistantships are available. Awards are based on the student's academic record and an assessment of the student's potential contribution to the research and teaching goals of the university. The student also may qualify for higher stipend instructor positions. Students should write to the chair of the industrial and management engineering department for further information.

Special Facilities and Laboratories

Engineering Core

For information about laboratories affiliated with core courses coordinated by other departments, see this subsection for each of the other engineering departments.

Required and Elective Course

Industrial and management engineering occupies the north wing of the fourth floor
Courses

Special Courses
15540 Cooperative Education/Training Assignment: Industrial Engineering 3 s.h.
Industriek engineer assignment is a part of the Cooperative Education Program. Includes an assignment in an industrial engineering activity, where the student is involved in the design, implementation, and evaluation of engineering systems, equipment, or processes.

15541 Professional Survival: Industrial Engineering 0.5 s.h.
A problem oriented approach to industrial engineering processing through lecture and discussion for group projects, field trips, tours, and panel discussions in topics of current interest. May be repeated. Students should register for 1 s.h. credit in the semester prior to graduation.

15609 Individual Investigations: Industrial Engineering 6 s.h.
Independent projects in industrial engineering under the supervision of a faculty member. Emphasis on design, analysis, and synthesis of equipment, processes, systems, and structures. Project may be conducted in cooperation with industrial firms.

15610 Manufacturing Processes 3 s.h.
Focused on the principles of manufacturing processes including casting, forging, plate forming, machining, metalworking, welding, and surface finishing. Manufacturing equipment and processes are emphasized rather than the general manufacturing process. Project may be conducted in cooperation with industrial firms.

15612 Machining Processes 3 s.h.
The emphasis of this course is the manufacturing processes involving machining. The course will cover the various types of machining processes and their applications in industry. The course will also cover the selection and operation of various types of machining equipment. The course will also cover the selection and operation of various types of machining equipment. The course will also cover the selection and operation of various types of machining equipment.

15613 Introduction to Industrial Robotics 1 s.h.
A course in robotics and automation for use in manufacturing processes. Topics include: kinematics, dynamics, controls, and applications. Emphasis is on the use of robotics in manufacturing processes.

15614 Computer-Intensive Manufacturing Systems 3 s.h.
A course in computer-aided manufacturing systems. Topics include: computer-aided design and manufacturing, computer-aided process planning, and computer-aided process control.

15615 Computer-Based Manufacturing Systems 3 s.h.
A course in computer-aided manufacturing systems. Topics include: computer-aided process planning, computer-aided process control, and computer-aided process simulation.

15616 Human Factors Ergonomics 3 s.h.
A course in human factors ergonomics. Topics include: human factors in design, manufacturing, and operation of equipment and systems. Emphasis is on the design of equipment and systems that are safe and efficient for human use.

Information and Engineering Management

15610 Information System Design 3 s.h.
A course in the design and implementation of information systems. Topics include: data analysis, systems design, software development, and project management.

15611 Computer Applications 3 s.h.
A course in computer applications for use in manufacturing processes. Topics include: computer-aided design, computer-aided process planning, and computer-aided process control.

15612 Manufacturing Information Systems 3 s.h.
A course in manufacturing information systems. Topics include: computer-aided design, computer-aided process planning, and computer-aided process control.

15613 Advanced Analytical Techniques 3 s.h.
A course in advanced analytical techniques for use in manufacturing processes. Topics include: computer-aided design, computer-aided process planning, and computer-aided process control.

15614 Advanced Managerial Psychology 3 s.h.
A course in managerial psychology. Topics include: the influence of human factors on the design and implementation of manufacturing systems.

15615 Operations Research 3 s.h.
A course in operations research. Topics include: linear programming, integer programming, and game theory.

15616 Quality Control and Reliability 3 s.h.
A course in quality control and reliability. Topics include: statistical process control, quality assurance, and reliability engineering.

Quality and Production Control

15620 Operational System Design 3 s.h.
A course in the design and implementation of operational systems. Topics include: system design, system implementation, and system evaluation.

15621 Quality Control and Engineering 3 s.h.
A course in quality control and engineering. Topics include: statistical process control, quality assurance, and reliability engineering.

15640 Reliability Theory and Practice 3 s.h.
A course in reliability theory and practice. Topics include: statistical probability, reliability analysis, and failure rate analysis.
56:086 Production Systems
3 a.h.

56:088 Production-Inventory Models
2 a.h.
Study of mathematical models for economic lot scheduling, demand for single, aggregate planning, and realistic scheduling network analysis, and applications of queueing theory to production systems. Precondition: 56:086 or equivalent.

Operations Research and Applied Statistics

56:170 Deterministic Operations Research
3 a.h.
Operations research models and applications, emphasizing deterministic models, linear programming, cost and inventory analysis, dynamic and game theory. Offered spring semesters. Precondition: 56:088 or equivalent.

56:173 Stochastic Operations Research
3 a.h.
Operative research models and applications emphasizing probabilistic models, decision theory, and game theory. Offered spring semesters. Precondition: 56:088 or equivalent.

56:178 Regression Analysis
3 a.h.
Analysis of the multiple linear regression model: expected model, model adequacy, residual analysis, diagnostic procedures, data transformations, and model building. Offered fall semesters. Precondition: 25:219 or equivalent. Same as 221:112.

56:180 Digital Systems Simulation I
3 a.h.
Digital simulation and modeling and analysis emphasizing the construction of models and the interpretation of simulation output. Topics include discrete-time modeling, continuous-time modeling, network simulation, and simulation of computer programs. Precondition: 25:139 or equivalent.

56:203 Linear Programming
3 a.h.

56:243 Nonlinear Programming
3 a.h.
Study of nonlinear programming models and methods, and algorithms; constrained and unconstrained optimization; convex and concave functions, necessary and sufficient conditions, and convex and concave programming. Precondition: 56:219 or equivalent.

56:250 Integer Programming and Network Flows
3 a.h.
Theory, algorithms, and applications of combinatorial optimization problems, including integer and 0-1 programming problems as well as network flow problems. Special emphasis on branch and bound, dynamic programming, and network models. Offered alternate fall semesters. Precondition: 56:219.

56:261 Reliable Service Systems
3 a.h.

56:263 Digital Systems Simulation II
3 a.h.
Methods of digital simulation emphasizing the simulation of computer systems on computer models. Special emphasis on statistical aspects of simulation and elimination of bias. Offered on alternate semesters. Offered spring semesters of odd years. Precondition: 36:118 or 25:153.

Graduate Seminars, Advanced Topics, and Research

56:382 Graduate Seminar: Industrial and Management Engineering
P.a.h.
Prerequisite and discussion of recent advances and research in industrial and management engineering to grant lectures, faculty, and students. Precondition: graduate standing.

56:390 Contemporary Topics in Industrial and Management Engineering
P.a.h.
New topics in area of study and newly offered for industrial and management engineering in a rotating basic topics based on faculty and student interest. Precondition: senior standing.

56:396 Industrial Investigations: Industrial and Management Engineering
P.a.h.
Industrial projects for industrial and management engineering students, such as a laboratory study, engineering design project, production identification, and management simulation. Offered alternate semesters. Precondition: graduate standing and consent of advisor.

56:400 Research in Industrial and Management Engineering
Erg.
Original investigation of an approved topic for partial fulfillment of the requirements for the M.S. degree in industrial and management engineering. Precondition: graduate standing and consent of advisor.

56:420 Advanced Topics in Industrial and Management Engineering
Erg.
Discussion of current literature in industrial and management engineering. Precondition: consent of instructor.

56:425 Research in Industrial and Management Engineering, Ph.D. Dissertation
Erg.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of the requirements for the Ph.D. degree in industrial and management engineering. Precondition: consent of advisor.

Mechanical Engineering

Chief: Chau-kin Chan

56:310 Graduate Seminar: Mechanical Engineering
P.a.h.
Prerequisite and discussion of recent advances and research in industrial and management engineering to grant lectures, faculty, and students. Precondition: graduate standing.

56:390 Contemporary Topics in Mechanical Engineering
P.a.h.
New topics in area of study and newly offered for industrial and management engineering in a rotating basic topics based on faculty and student interest. Precondition: senior standing.

56:396 Industrial Investigations: Mechanical Engineering
P.a.h.
Industrial projects for industrial and management engineering students, such as a laboratory study, engineering design project, production identification, and management simulation. Offered alternate semesters. Precondition: graduate standing and consent of advisor.

56:400 Research in Mechanical Engineering
Erg.
Original investigation of an approved topic for partial fulfillment of the requirements for the M.S. degree in industrial and management engineering. Precondition: graduate standing and consent of advisor.

56:420 Advanced Topics in Mechanical Engineering
Erg.
Discussion of current literature in industrial and management engineering. Precondition: consent of instructor.

56:425 Research in Mechanical Engineering, Ph.D. Dissertation
Erg.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of the requirements for the Ph.D. degree in industrial and management engineering. Precondition: consent of advisor.

Curriculum

Sophomore Year

First Semester
22M:42 Vector Calculus for Engineers 3
S:17 Dynamics 3
S:18 Introduction to Electrical Science 3
S:15 Materials Science 3
S:16 Thermodynamics I 4
Second Semester
22M:41 Differential Equations for Engineers 3
S:12 Linear Systems Analysis 3
S:18 Principles of Electronic Instrumentation 4
S:19 Mechanics of Deformable Bodies 3
22M:45 Mechanics and Kinetics 3
Total 16

Junior Year

First Semester
225:59 Probability and Statistics for Engineering and Physical Sciences 3

Undergraduate Program

The undergraduate program prepares the student for a career in engineering, with an emphasis on the technical areas of thermal energy systems and the conversion of thermal energy to mechanical and electrical energy, mechanical systems and machines, and design and control of these systems.

The undergraduate curriculum provides a substantial number of electives in both technical areas and in the humanities and social sciences. Technical electives are selected to provide in-depth knowledge in at least one of the major disciplines of mechanical engineering. Technical electives in major disciplines are offered in thermodynamics, heat transfer, solar energy, combustion, fluid mechanics, aerodynamics, mechanical design and systems, feedback control, computer graphics, computer-aided analysis, computer-aided design, finite-element mechanics, and biomechanics. All upper-class students undertake a design project. A handbook describing the curriculum and program requirements is available in the department office.
Fluid Mechanics

The graduate program in fluid mechanics is especially suitable for those seeking careers in teaching and/or research in academic and industrial organizations. Emphasis is on the elucidation of fundamental principles and techniques of solving problems in the various fields of fluid dynamics applications. In addition to physical modeling, strong emphasis is given to the use of digital computers, both in the mathematical modeling of flow phenomena and in the acquisition and processing of experimental data.

Thermal Science and Systems

The graduate program in thermal science and systems is designed to prepare students for careers in industry, teaching, or government. Emphasis is on the fundamentals of thermodynamics and heat transfer and associated analytical and experimental methods used in energy conversion systems. Areas of concentration include: fluid dynamics, numerical heat transfer, solar energy systems and thermodynamics, combustion, radiation, and convective heat transfer.

Mechanical Systems

The graduate program in mechanical systems is designed to prepare students who want to pursue careers in high-level applied research, advanced system analysis, and design or teaching. Emphasis is placed on fundamental principles, techniques, and experimentation used to analyze and design mechanical systems. Areas of concentration include: machine dynamics, computer-aided design, optimal design, structural optimization, software development, control systems, and materials behavior (elastogel fracture mechanics, etc.).

Biomechanics and Biomaterials

The graduate program in biomechanics is designed to provide the student with a strong background in the interdisciplinary subject. The educational experience is intended for those who wish to pursue careers in high-level applied research in bioengineering and medical and clinical engineering. Emphasis is placed on the fundamental principles of experimental techniques used to analyze and design biomechanical systems. Areas of concentration include: trauma biomechanics of the central nervous system, biomechanics of the spine, biomechanics of the lower and upper extremities, cardiovascular biomechanics, biomedical systems analysis, optimization as applied to biomechanics, biomedical image analysis, and health care delivery.

Master of Science

The M.S. program requires a minimum of 30 semester hours of course work and research. Students may choose either a thesis or a thesis program. A thesis program may include 5 semester hours in thesis research. After admission to a graduate degree program, the student should visit the mechanical engineering faculty and find an academic advisor during the first semester. All graduate students in residence are required to attend 60411 Graduate Seminar. The Mechanical Engineering each semester. To earn the M.S. degree, students are required to attain a minimum grade-point average of 3.0 on a minimum of 30 semester hours of graduate work and be successful in the final examination administered by the committee. The requirements for the M.S. degree may be completed within a calendar year for a full-time student. However, students with assistantship duties or other constraints may require between two and two calendar years to complete the degree.

Doctor of Philosophy

Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hours of credit—including research for the dissertation—beyond the baccalaureate degree. All graduate students are required to attend 65499 Graduate Seminar Mechanical Engineering. There is no foreign language requirement. Part-time Ph.D. students are discouraged and students who cannot study full-time on campus will rarely be admitted to the Ph.D. program. One of the Ph.D. degree requirements is a minimum grade-point average of 3.25 on all graduate work done at The University of Iowa. All students in the doctoral program are required to take the qualifying examination during their first year in the program. The qualifying examination is a written comprehensive examination in the student's major field of study and is open to the advisor's recommendation, the student is admitted to the comprehensive examination given by the student's committee. The comprehensive examination must be completed within 28 months from the time of starting work towards a Ph.D. degree. During this time, the Ph.D. student is examained over all elementary, intermediate, and advanced courses relevant to his or her degree program. The oral examination examines the student's preparation for the proposed dissertation research project in addition to the student's course work. The oral examination generally is taken within one month after the written examination. Having successfully completed the comprehensive examination, the student normally has only to complete and successfully defend the dissertation. The doctoral dissertation is required as partial fulfillment of the Doctor of Philosophy degree.

Requirements for the Ph.D. degree generally can be completed in three to four years beyond the master's degree, but some students may find holding assistantship appointments in the department.

Graduate Programs

The mechanical engineering graduate program at both the M.S. and Ph.D. levels is designed to educate students in contemporary methods and solution techniques at an advanced level and to prepare them for professional careers in mechanical engineering design, development, and research. The plan of study is tailored to meet the student's career aspirations. The principal areas of concentration in the graduate program are thermal science and systems, fluid mechanics, mechanical systems, and biomechanics, each of which is briefly described below.
Admission

Students who have earned a baccalaureate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences with a minimum grade-point average of 2.50 are eligible for admission to the Master of Science degree program in mechanical engineering. Reference letters and scores on the Graduate Record Examination (GRE) Aptitude Test are also taken into account in admission decisions.

Students who have earned a baccalaureate or post-baccalaureate degree in an engineering curriculum or a curriculum in the mathematical and physical sciences may be admitted as Ph.D. students if they have a minimum undergraduate grade-point average of 3.64. Reference letters, scores on the GRE Aptitude Test, student research interests, previous graduate study grade-point average, and other factors are considered in deciding the feasibility of admitting a student. Students with a Ph.D. objective who enroll with a baccalaureate degree first must be admitted to the M.S. program.

Admission as a Ph.D. student is conditional until the student successfully completes a qualifying examination that is administered by his or her committee during the second semester of studies after initiation of coursework for the Ph.D. degree. Students graduating with the M.S. degree from the mechanical engineering department at The University of Iowa may request that the M.S. final examination also include the Ph.D. qualifying examination. The decision on whether the student's performance in this examination is adequate for admission as a Ph.D. student is made by the student's committee and the department chair. After the Ph.D. qualifying examination, a Ph.D. committee is selected by the student and accepted by the department chair. The Ph.D. committee must include at least five faculty members, of whom at least one must be from outside the Department of Mechanical Engineering.

Financial Aid

Financial support is available to M.S. as well as Ph.D. students, primarily through research assistantships. Students are eligible for research assistantships in the Department of Mechanical Engineering, the Iowa Institute of Hydraulic Research, the Center for Materials Research, the Center for Computer-Aided Design, and the College of Medicine. These awards may be made on a semester, academic year, or calendar year basis. Awards and competitions are available in response to the students' potential contribution to the research and teaching goals of the program. Students who fulfill their assistantship responsibilities adequately and who remain satisfactory toward their degree objectives are eligible for the awarding of new assistantships. Advanced doctoral students also may qualify for higher-ordered instructor positions. All applications for financial support should be sent directly to the chair of the Department of Mechanical Engineering.

For more details on the graduate program in mechanical engineering, reference may be made to the Graduate Handbook for the Department of Mechanical Engineering, available in the department office.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The laboratories for fluid flows and transportation processes contain a small wind tunnel; a water flume; a water table; four water channels with porous media; three air jet tables; various air, water, and oil flow devices; and facilities for numerous small-scale experiments to demonstrate the principles of mass, momentum, and energy transfer.

There is a laboratory for engineering graphics practice.

For information about laboratories affiliated with core courses coordinated by other engineering departments, see the subsection for each department.

Required and Elective Course Laboratories

The mechanical engineering laboratory for experimental engineering provides undergraduate students with exposure to contemporary techniques in analog signal conversion, instrumentation, and computer-aided data acquisition systems.

The laboratory for mechanical engineering projects provides for each group or individual project activities in mechanical engineering design, construction of mechanisms, and testing.

The solar energy and heat transfer laboratory is equipped with a data acquisition system for process data on-line on computer. Experiments in solar energy applications and heat transfer measurements are made in this laboratory.

Graduate Facilities and Laboratories

The fluid mechanics courses are closely connected with the research and consulting activities of the Iowa Institute of Hydraulic Research, particularly in fluid mechanics, hydraulic engineering, flow instrumentation, and some aspects of thermal sciences related to diffusion and dispersal of waste heat to water.

In the thermal engineering laboratories, research is conducted in the solar energy, thermal radiation, combustion, and heat transfer laboratories in the Engineering Building.

The mechanical engineering systems laboratories are equipped to give students a wide variety of experiences using modern methods of measurement and analysis, including computers, a variety of strain gauges, a photo-electric laboratory, and other conversion instrumentation.

The biomechanics laboratory is equipped for research in stress analysis and modeling associated with biomechanical systems. Equipment includes a photo-plastic bench with Digital transmission polariscope, photo-electric camera, fringe multiplier, contour projector, photo-stress meter, and recording equipment.

The hydrodynamics laboratory is equipped for research in cardiovascular fluid dynamics. Equipment includes a Laser Doppler Anemometer system for fluid velocity and turbulence measurements, a mock circulatory system, a Bloodflow viscometer pressure transducers, and miscellaneous measuring instruments.

Courses

Special Courses

5400 Cooperative Education Training Assignment: Mechanical Engineering 3-6th semester Mechanical engineering student participating in the Cooperative Education Program register in this course during each work experience period, representing a minimum of 400 hours per semester. A letter grade of S or U is given. Prerequisite: permission of the Department of Mechanical Engineering and approval of Faculty Advisor.

5500 Experimental Engineering 3-6th semester Experimental engineering courses and labs are based on state-of-the-art standards and are designed to provide students with hands-on experience in the performance of research-oriented laboratory experiments, experiment planning, report writing. Prerequisite: 3600, 3650, and 3710.

5501 Mechanical Engineering Project 3-6th semester Application of Mechanical Engineering Design; group design project is required of all students in the design process and must consist through its higher levels. Prerequisite: 3650. Co-requisite: 3710.

5502 Professional Seminar Mechanical Engineering 1-6th semester Introduction to the professional aspects of mechanical engineering. Prerequisite: permission of advisor. Prerequisite: junior standing.

5601 Energy in Contemporary Society 3-6th semester Energy and its utilization in our society and our environment. Interdisciplinary approach to cross-disciplinary implications of energy systems. Prerequisite: permission of instructor. Prerequisite: sophomore standing or equivalent.

5602 Individual Investigation: Mechanical Engineering 1-6th semester Investigation into the field of mechanical engineering, research for mechanical engineering undergraduate students, such as a laboratory study, engineering design project, analysis and simulation of an engineering problem, development of a substantial original contribution to knowledge, research, etc. Prerequisite: permission of advisor.

5611 Instr. Proc. in Engineering 3-6th semester Technical reports, technical papers, and oral presentations in engineering. Selective emphasis on oral and written communication techniques. Prerequisite: 3110 and ENMEM. Taught as 5611A.

General Courses

5617 Mechanical Drawing 3-6th semester

5618 Cooperative-Aided Design II 3-6th semester Cooperative education and professional field experiences in design courses. Students are engaged in the design of parts and equipment in practical, real-world situations. Students may conduct research, test path geometry, mass property calculations. Prerequisite: 5741 and ENMEM. Taught as 5618A.
56.252 Advanced Mechanical Design
Advanced topics in mechanical systems design and analysis, mission critical systems, and systems reliability.
Prerequisites: 56.152.
56.253 Computational Methods in Dynamics
Computational methods for the simulation of dynamic systems, including numerical methods for ordinary and partial differential equations, and applications to mechanical systems. Prerequisites: 56.152 and 56.151.
56.254 Energy Principles in Structural Mechanics
Principles of virtual work, equilibrium, and variational principles in energy analysis of finite dimensional systems, with applications to beams, plates, and shells. Prerequisites: 56.154 and 56.251. Same as 55.254.
56.255 Solid Mechanics II
Solutions of problems on stress in homogeneous media by the variational principle, crack geometry, crack tip-plastic zone, and other computational methods of plastic behavior. Prerequisites: 56.251 or equivalent. Same as 55.255.
56.257 Theory of Viscous Fluids
Linear theory of hydrodynamics, measured fluids, finite deformation of incompressible solids, constitutive equations, and boundary and initial value problems. Prerequisites: 55.190. Same as 55.257.
56.258 Continuum Mechanics and Plasticity
Principles of plasticity, analysis of plastic flow and failure, and applications to metal working and fracture. Prerequisites: 55.240.
Biomechanics and Biomaterials
56.170 Composite Materials
Same as 51.177.
56.271 Advanced Biomaterials
Same as 51.270.
Graduate Seminars, Advanced Topics, and Research
56.190 Endings in Mechanical Engineering
For graduate students with practical experience who want to enhance their knowledge and research skills. Prerequisite: graduate standing.
56.196 Graduate Seminar: Mechanical Engineering
The seminar covers current advances in mechanical engineering and research. Prerequisite: student should be actively engaged in graduate research.
56.198 Computational Topics in Mechanical Engineering
New topics in fluid and thermal sciences and the development of new materials and processes for the management of heat and fluid flows. Prerequisite: graduate standing.
56.199 Individual Research: Mechanical Engineering
Individualized instruction for mechanical engineering graduate students, such as laboratory study, design project, analysis and synthesis of an engineering system, computer software development, and research. Prerequisites: graduate standing and consent of advisor.
56.299 Research: Mechanical Engineering
M.S. Thesis
Experimental or theoretical investigation of an approved topic by partial fulfillment of the requirements for the M.S. degree with thesis in mechanical engineering. Prerequisites: graduate standing and consent of advisor.
56.299 Research: Mechanical Engineering
Ph.D. Dissertation
Experimental or theoretical investigation of an approved topic by partial fulfillment of the requirements for the Ph.D. degree in mechanical engineering. Prerequisites: consent of advisor.
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, nearly one-fifth of its enrollment is in the Graduate College. This unusually high ratio reflects the breadth of the University's graduate programs and resources, the strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarship, fellowship, and research funds, the Graduate College encourages research and strengthening of departments. It offers extensive assistance to individual faculty members in finding the resources necessary for research projects. The Graduate College works with the other colleges of the University and with departments in the formulation of policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College comprises all University faculty members in the ranks of assistant professor, associate professor, and professor. A 12-member Graduate Council, elected from and by the graduate faculty and the Graduate Student Senate, is the executive committee of the graduate faculty and is advisory to the dean of the Graduate College.

**Degree Programs**

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Business Administration (M.B.A.), Master of Fine Arts (M.F.A.), Master of Social Work (M.S.W.), Master of Music (M.M.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently confers degrees in the following major fields:

- Accounting—M.A.
- African-American World Studies—M.A.
- American Studies—M.A., Ph.D.
- Anatomy—M.S., Ph.D.
- Anthropology—M.A., Ph.D.
- Applied Mathematical Sciences—Ph.D.
- Art—M.A., M.F.A.
- Art History—M.A., Ph.D.
- Asian Civilization—M.A.
- Astronomy—M.S.
- Biochemistry—M.S., Ph.D.
- Biology—M.S.*, Ph.D.
- Botany—M.S.*, Ph.D.
- Business Administration—M.A.*, M.B.A.**, Ph.D.
- Chemical and Materials Engineering—M.S., Ph.D.
- Chemical Physics—M.S., Ph.D.
- Chemistry—M.S.*, Ph.D.
- Civil and Environmental Engineering—M.S.*, Ph.D.
- Classics—M.A.*, Ph.D.
- Communication Studies—M.A.*, Ph.D.
- Community Dentistry and Dental Public Health—M.S.
- Comparative Law—M.C.L.**
- Comparative Literature—M.A.*, Ph.D.
- Computer Science—M.S.*, Ph.D.
- Criminal Justice and Corrections—M.A.**
- Dental Hygiene—M.S.
- Economics—M.A.*, Ph.D.
- Electrical and Computer Engineering—M.S.*, Ph.D.
- Endodontics—M.S.
- English—M.A.*, M.F.A., Ph.D.
- Family and Consumer Sciences—M.S., Ph.D.
- French—M.A.*, Ph.D.
- Genetics—Ph.D.
- Geography—M.A.*, Ph.D.
- Geology—M.S.*, Ph.D.
- German—M.A.*, Ph.D.
- Greek—M.A.**
- History—M.A.*, Ph.D.
- Home Economics—M.A., M.S.
- Hospital and Health Administration—M.A.*, Ph.D.
- Industrial and Management Engineering—M.S.*, Ph.D.
- Journalism—M.A.
- Latin—M.A.**
- Library and Information Science—M.A.*
- Linguistics—M.A.*, Ph.D.
- Mass Communications—Ph.D.
- Mathematics—M.S.*, Ph.D.
- Mechanical Engineering—M.S.*, Ph.D.
- Microbiology—M.S., Ph.D.
- Museum Methods—M.A.***
- Music—M.A.*, M.F.A., D.M.A., Ph.D.
- Neuroscience—Ph.D.
- Nursing—M.A.
- Nutrition—Ph.D.
- Operative Dentistry—M.S.
- Oral Pathology—M.S.
- Oral and Maxillofacial Surgery—M.S.
- Orthodontics—M.S.
- Otalaryngology—Head and Neck Surgery—M.S.
- Pathology—M.S.
- Pediatric Dentistry—M.S.
- Periodontology—M.S.
- Pharmacology—M.S., Ph.D.
- Pharmacy—M.S.*, Ph.D.
- Philosophy—M.A.*, Ph.D.
- Physical Education—M.A.*, Ph.D.
- Physical Therapy—M.A.
- Physics—M.S., Ph.D.
- Physiology and Biophysics—M.S., Ph.D.
- Political Science—M.A.*, Ph.D.
- Preventive Medicine and Environmental Health—M.S., Ph.D.
- Psychology—M.A.*, Ph.D.
- Public Affairs—M.A.**
- Radiation Biology—M.S., Ph.D.
- Recreation Education—M.A.*
- Religion—M.A.*, Ph.D.
- Removable Prosthodontics—M.S.
Mathematical Sciences" under “Division of Mathematical Sciences” in the "College of Liberal Arts" section of the Catalog for a list of faculty and a further description of the program.

Center for International and Comparative Studies

The Center for International and Comparative Studies provides interdisciplinary research and education in international and comparative studies. This Center coordinates and supports interdisciplinary international studies at The University of Iowa. Founded in 1981 as a faculty committee, it was recognized by the Board of Regents of the University of Iowa in 1984 as an academic program. In 1985, CIS was awarded a grant from the U.S. Department of Education to establish a Title VI National Resource Center on International Studies, becoming one of only 11 centers in the nation so recognized. This grant supports a variety of research and instructional activities on selected aspects of international development. As a national resource center, CIS serves the state, the region, and the nation by making available the human and bibliographic resources of the University through public lectures, informational programs, and research activities.

The center is managed by a half-time director and an executive committee in faculty representing seven interdisciplinary programs: Asian Civilizations, African Studies, Global Studies, International Development, Latin American Studies, Women in Development, and the Project for International Communication Studies. Faculty members and students in these programs are drawn from schools and departments across the University. CIS works closely with the Office of International Education and Services, and both organizations are linked administratively to the vice-president for educational development and research.

Four of the seven programs in CIS combine research with classroom instruction in both undergraduate and international programs: African Studies, Asian Civilizations, Latin American Studies, and Global Studies (for further details, see the appropriate section under ‘College of Liberal Arts’ in the Catalog). The Program for International Development promotes research, teaching, and technical assistance activities. The Women in Development Committee and the Project for International Communication emphasize research, programs, and instructional activities. The Center supports international studies by funding more than 60 public lectures and seminars yearly; by providing administrative facilities to visiting scholars; and by furnishing office space in the Jefferson Building, where students and faculty meet to hold classes and seminars. CIS cooperates with the Iowa City Foreign Language Council and other community organizations in providing speakers. CIS receives numerous foreign periodicals and newspapers, which are maintained in a small library in the Jefferson Building.

Evolutionary Ecology and Behavior

Students seeking approval for an interdepartmental Ph.D. program must present a proposal that has been approved by all faculty prior to enrollment. Students are encouraged to work closely with a faculty member in each department. When the application has been approved by all faculty, the proposal must be submitted to the Office of Graduate Studies. The proposal must include a plan of study, a statement of research objectives, and a description of the student’s academic background. The plan of study must include a minimum of 90 semester hours of graduate coursework, with a minimum of 60 semester hours in courses relevant to the field of study. The student must maintain a minimum GPA of 3.0 in all courses taken for credit.

Program and Facilities

The departments of Botany and Zoology offer a number of graduate students, and the facilities of the department of zoology are available to students in the field of evolutionary ecology and behavior, emphasizing adaptation, community ecology, and the genetic basis of adaptation.

Particular strengths of the program are behavioral and quantitative genetics, population studies, and evolutionary ecology. There is also strong emphasis on balance between controlled experimentation and field observation. Laboratory research may include controlled breeding experiments in which heritability, genotype-environment interactions, and genetic correlation of morphological and behavioral traits are investigated. Field research emphasizes the adaptive significance of traits, interactions between species, and population dynamics.

The University of Iowa has a number of facilities that are open to students in the field of evolutionary ecology and behavior. The Iowa Lakes Laboratory on Lake Okoboji and the Lake Okoboji Biological Station are excellent facilities for research on nekton and fish populations in a shallow, relatively undisturbed environment. The University also maintains a number of herbaria and collections of plants, animals, and other organisms.
See "Genetics" in the "College of Liberal Arts" section of the Catalog for a list of participating faculty, degree requirements, and courses offered.

Inter-University Center for Film and Critical Studies in Paris

Program coordinators: Charles P. Alman, J. Dudley Andrew

The University of Iowa is one of a consortium of 21 colleges and universities associated with the Council on International Educational Exchange (CIEE), which sponsors a Film Studies Program and a Contemporary Criticism and Culture Program. These are two unique academic opportunities offered at the Centre Universitaire Américain du Cinéma et de l'Image à Paris.

The Film Studies Program is designed to explore film theory and analysis—not to train filmmakers or technicians. The curriculum provides students with courses and seminars in film theory, formal structures, history, and ideology. Participants study the relationships between films and other art forms—film, culture, film and language, and film and psychoanalysis. Students discuss themes such as the evolution of the early cinema; the silent films of Griffith, Lang, Eisenstein, and Buñuel; the classic Hollywood film; French cinema during and after the Occupation; and European and American avant-garde cinema. Participants study the works of Metz, Freedom, Barthes, Lacan, Althusser, Foucault, and others to gain an understanding of contemporary French culture, mass media, and the visual arts.

The Contemporary Criticism and Culture Program focuses on recent debates in French political thought and social institutions, linguistics, social sciences, and literary theory. It draws on recent theoretical concepts in the fields of linguistics, psychoanalysis, anthropology, art history, and media theory to analyze verbal and visual representations in literature, painting, photography, film, and television. The interdisciplinary nature of this program makes it relevant not only to French majors, but also to students of other disciplines concerned with the problems of criticism and culture. It is of particular value to those who wish to explore the applicability of modern French theory to a variety of disciplines.

A recent addition to the program is a specialization in history characterized by the application to historical research of insights from other disciplines, such as linguistics, cultural geography, archeology, sociology, and economics. Particularly distinctive in the French historical approach has been a preoccupation with the long-term evolution of populations and the social, economic, and cultural development of groups of ordinary people, seen in their urban or regional contexts.

A student may concentrate in one of these programs or enroll in an individual program combining elements from both study center components.

Participating students are registered in the University of Paris III—Ceranat and are eligible to take selected courses within the University of Paris as well as those directly sponsored by the center. The program is open to both undergraduate and graduate students from The University of Iowa. For further information contact the program coordinators.

Iowa Quaternary Studies Group

Co-directors: Richard G. Baker (Geology), Robert S. Carrell (Geology), John D. Davis (Geology), Brian P. Gass (Geology), Holme A. Jenkins (Geology), Kevin F. Scott (Geology), Sherwood Tolman (Geology)

Associate professors: Graham A. Tabor (Geography), George G. Woodward (Statistics) Assistant professor: Ann B. Foster (Geology)

Graduate advisers: Diane C. Anderson (Anthropology)

Visiting assistant professor: George F. Weisberg (Geography)

Adjunct professor: George R. Hauberg (Geology)

Adjunct professor: Diane C. Anderson (Anthropology)

Adjunct assistant professor: K. Sander Rhines (Geology), Donald F. Schwenn (Geology)

Program and Facilities

Students working toward master's and doctoral degrees in the departments of Anthropology, Biology, Geography, Geology, and Statistics and Actuarial Science may develop programs emphasizing some aspect of Quaternary studies. Students with strong interests in one or more aspects of Quaternary Science may broaden their program with courses in these collateral sciences as they progress toward a degree in their chosen field.

Research by the faculty and students includes palaeoecological and palaeoethological studies using pollen, vascular-plant macro-knobs, hypogynous, microscopic, insects, and vertebrates; studies of glacial geology, geomorphology, and glacial geology, and stratigraphy; glacial geomorphology, palaeoecology, and stratigraphy; and stratigraphy and palaeoecology; palaeoecology of rocks and sediments; studies in vertical distribution, geology, and ecology; studies of human-glexer sociobiology and their environments; and studies of cultural development and human-environment interactions. Field areas have ranged from the Arctic to the tropics, and from the Rocky Mountains across the Great Plains and Central Lowlands to the Caribbean.

Facilities available on campus include both large-equipped and hand-operated coring devices, laboratories for sedimentologic analysis, pollen preparation, vertebrate preparation, artifact preparation, X-ray equipment, optical microscopy, and...
Joint Programs within the Graduate College

Joint programs with the College of Law and a number of departments in the Graduate College have been developed under which students can simultaneously pursue degrees in both colleges. For further details see "College of Law" section of the Catalog.

Research Resources

The many and diverse research activities of the University are centrally administered by the Office of the Vice-President for Educational Development and Research, which has an interlocking relationship with the Graduate College. For further information, see "Research Activities" in the "Special Resources at Iowa" section of the Catalog.

Financial Assistance

Approximately half of the University's graduate students receive some form of University-administered financial assistance. Eligibility requirements and application procedures are set forth in "Section VII. Graduate Appointments" in "Rules and Regulations of the Graduate College." These are the primary sources of assistance.

Teaching and Research Assistantships

Available in most departments; stipends typically range between $7,200 and $8,500 for half-time assistantship. Assistantship also are eligible for tuition scholarships; nonresident assistant's (non-summer term) tuition and fees are reduced to resident rates.

University Teaching-Research Fellowships

For first-year graduate students entering doctoral programs; typical stipends are $11,500 a year on a year-round basis, with all tuition paid, for as many as four years. Departmental participation assures that the recipient will be involved in research, teaching, and departmental affairs: two years out of four and all summers, recipients have full time to pursue studies, research, or writing.

The University of Iowa Fellowship Program

For first-year graduate students entering doctoral programs; typical stipends are $11,500 a year on a year-round basis, with all tuition paid, for as many as four years. Departmental participation assures that the recipient will be involved in research, teaching, and departmental affairs: two years out of four and all summers, recipients have full time to pursue studies, research, or writing.
Graduate Student Senate
The Graduate Student Senate is the University graduate student body representative organization. Representatives are elected annually from each University department having a graduate degree program. The Senate's primary purpose is to serve the interests of the graduate student body in matters affecting their welfare. The Senate advises the dean of the Graduate College on matters pertaining to the Graduate College.

Rules and Regulations of the Graduate College
The Academic Program
Section I. Admission to the Graduate College
A. Application Procedure
All students seeking to register for the first time in the Graduate College of The University of Iowa must secure a formal admission statement from the director of admissions. Applicants may obtain the proper forms from the director of admissions. The University of Iowa, Iowa City, Iowa 52242.

In addition to these forms, official transcripts from each undergraduate and graduate institution attended must be submitted to the director of admissions by the designated deadline prior to the semester in which admission is expected. Admission applications must arrive no later than July 15 for fall semester or May 1 for summer session. These are the general Graduate College deadlines. Individual departments may establish earlier admission cutoff dates.

B. Graduate Record Examination
All applicants prior to consideration for admission must take the Graduate Record Examination (GRE) or Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete, with the exception of scores on the GRE or GMAT, may, depending on departmental policy, be admitted if they meet all other requirements. The GRE or the GMAT must be taken before the end of the student's first session of enrollment. The test is given several times a year at test centers established under the direction of Educational Testing Service, Princeton, New Jersey. The judgment of accessible levels of performance on the test and its weight in the decision on admission of a student is left to the departments. Some departments in fields where GRE Subject (Advanced) Tests are available require these in addition to the General (Apitude) Test. Inquiries about the General (Apitude) Test may be directed to University Evaluation and Examination Service, and inquiries about the requirements of the Subject (Advanced) Test should be addressed to the executive officer of the department in which the applicant is interested.

C. English for Foreign Students
Prior to consideration for admission, foreign students applicants whose native language is other than English must take and pass the TOEFL. (The English as a Foreign Language) unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand. The examination is given at various times throughout the year, and in many centers throughout the nation. It is designed to test the oral and written comprehension and expression of students in English. Applicants are required to register with the director, TOEFL, Educational Testing Service, Princeton, New Jersey 08549.

Foreign students transferring from unaccredited degree programs of other universities in the United States who have not taken the English as a foreign language test must take the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of those students who are receiving the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of those students who are receiving the TOEFL examination and receive a passing grade prior to consideration for admission.

D. Early Admission
A student who is within four 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 provisionally admission.

E. Candidacy
Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa (See "Section X, Master’s Degree," "Section XI, Two-Year Degrees," and "Section XII, Doctor’s Degrees.")

F. Declaration of Major and Degree
Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limited number of candidates registered as "special students." (See definition of "special status" in next paragraph.) Changes in the major or degree status may be made in the course of a student's graduate study with the approval of the department to the minor to which the transfer is proposed. To initiate such action the student must file a change of major or degree status in the Office of Admissions.

G. Status upon Admission
All students upon admission fall into one of the following categories:

1. Regular—Students who have met the minimum requirements for admission and who have been accepted by a department, or interdepartmental degree program, for work leading to a graduate degree or certificate or professional (or personal) improvement.

2. Conditional—Students who are interested in working toward a graduate degree or certificate but who are required by the department to demonstrate their ability to do satisfactory graduate work before being admitted to regular status. To be admitted on a conditional basis, students must be recommended by a department, which will assure admittance by transferring them to that department.

3. Special—Students with valid bachelor's degrees with at least a 2.5 grade-point average who are not planning to become candidates for a graduate degree or certificate. Registration as a special student is allowed for only one semester or summer session. Before registration for any subsequent session, including another summer session, a special student must file an application and be admitted by a department or program to regular or
J. Admission of Faculty Members to Graduate Study

Persons who hold faculty rank of assistant professor (lecturer or assistant professor) or above at The University of Iowa may be admitted as special students. (See "Section G above.") A person holding faculty rank as specified above may petition the Graduate College for permission to enter into a departmental program for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment or a closely related department. In all cases work must have prior approval of the department of appointment, and the college of appointment, the department in which study is to be pursued, and the Graduate Council.

K. Credit for Graduate Work

Graduate credit for work done at other institutions will be accepted only where it has been approved by the Graduate College. Credit granted will be recorded on the student's transcript only if the student has earned the equivalent of at least 15 semester hours at Iowa of the work for which credit is to be granted.

L. Transfer of Graduate Credit

Credit for work done at other institutions will be accepted only where it has been approved by the Graduate College. Credit granted will be recorded on the student's transcript only if the student has earned the equivalent of at least 15 semester hours at Iowa of the work for which credit is to be granted.

M. Credit for Work Outside the University

Credit for work done at other institutions will be accepted only where it has been approved by the Graduate College. Credit granted will be recorded on the student's transcript only if the student has earned the equivalent of at least 15 semester hours at Iowa of the work for which credit is to be granted.

N. Registration

1. One-half time appointees may register for not more than 12 semester hours during the eight-week summer session.
2. Five-eighths-time appointees may register for not more than 15 semester hours during a semester or five semester hours during the eight-week summer session.
3. Two-thirds- and three-quarter-time appointees may register for not more than 19 semester hours during a semester or five semester hours during the eight-week summer session.
4. Seven-eighths-time appointees may register for not more than seven semester hours during a semester or four semester hours during the eight-week summer session.
5. Full-time appointees, including full-time instructors, may register for not more than six semester hours during a semester or three semester hours during the eight-week summer session.

O. Retroactive Registration

No form of retroactive registration is permitted.

P. Registration for Part of a Session

A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total number of students may not exceed the 15 semester hours permitted for a semester and the eight semester hours permitted for the eight-week summer session. Registration after the last day of the third week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis, or research with the signed approval of the instructor concerned and the Graduate College dean.

G. Extramural Registration

After admission to a departmental program in the Graduate College, registration for work done off campus is accepted for residency credit under the following circumstances:
1. Traveling Scholar Program of the Committee on Institutional Cooperation (see "Section J."
2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa.
3. Field work as part of a regularly scheduled course or research program.
4. Courses taught on campus by members of the graduate faculty (see "Section J."
5. Certain credit hours required on campus for the master's and doctoral programs.

6. Residence graduate credit from another
L. Dropping of Courses

All graduate students who drop courses after the deadline established by the dean of the Graduate College for each semester and published by the registrar shall receive the grade of F unless the entire registration is withdrawn. This policy may be waived only by the Graduate College dean on the recommendation of the Student Health director or the Student 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 register.

Section III. Traveling Scholar Program

A. Purpose

The program, under the auspices of the Committee on Institutional 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, special course offerings, research opportunities, unique laboratories, and library collections.

B. Procedures

1. A CIC Traveling Scholar list must be recommended by his or her own graduate advisor, who will make an appropriate faculty member at the possible host institution in regard to a visit to an advanced department with approval of the Graduate College dean and the department.

2. A CIC Traveling Scholar will be registered at the host university, and fees will be applicable only by that institution. The student registers for 0.50 SEMIC Scholar at The University of Iowa.

3. Credit for the work taken will be recorded at the home university.

4. While desiring additional information should inquire at the office of the Graduate College.

C. Conditions

CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to accept or reject any student whom it wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal

A. Nondoctoral Students

A student, graduate one on conditional status, shall be placed on probation if, after completing eight more semester-hour of graduate work at this University, he or she shall have attempted to meet the remaining requirements for the degree or shall have failed to achieve a cumulative grade-point average of 3.0, the student shall be returned to good standing.
Section VI. Marking System

A. Marks Carrying Graduate Credit
These are A, B, C, and S—satisfactory.

B. Marks Carrying No Graduate Credit
These are D, P, F, I—Incomplete, W—withdrawn without diagnosis, and U—unsatisfactory.

C. Audit
It is assigned when a student registered for zero credit attends as an auditor throughout the course; if the student fails to meet the instructor’s requirements for class attendance, W is assigned.

D. Incomplete
The grade of I is to be used only when a student’s work during a session cannot be completed because of illness, accident, or other circumstances beyond the student’s control. In registrations for thesis, research, or independent study, the satisfactory/unsatisfactory grades may be applied. (See next paragraph, “C.”) Students who receive the mark of I must remove that mark within the first session of registration after the closing date of the session for which it is given, or else the grade becomes F, except that students with F’s from the spring semester are exempt from completing the course during the succeeding summer session.

Specific standards for the substitution of student work to the faculty and for the faculty’s report on I grade to the registrar will be set by the Graduate College Dean for each session and printed in the academic calendar. Courses may not be repeated to remove incomplete, removal of an F or I, or completion only through completion of the specific work for which the mark is given.

Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects.

S-satisfactory means that the student receives credit for the work. U—unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, departments may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. In general, these requests may be granted for no more than one session and must be reviewed by the Graduate Council before being granted for longer periods. The type of grading system to be used in the above cases should always be understood by the instructor and student.
F. Grades of S and U
S and U may be used for courses taken by a graduate student outside the major department or interdisciplinary degree program provided that the instructor of the course and the student's departmental adviser approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by filing a card with appropriate signatures in the Registrar's Office at the time of registration, or no later than the last day of the third week of a semester or the third day of the second week of a summer session. No changes from letter grades to satisfactory/unsatisfactory grades or vice versa will be allowed after these dates.

It is not the policy of the Graduate College to award the traditional letter grades described in this section; however, in certain exceptional instances, departments having several areas of concentrations involving widely differing types of effort may request the permission of the Graduate College to allow students majoring in one area to register in courses in another area within the same department or program on a satisfactory/unsatisfactory basis. In these instances, satisfactory/unsatisfactory only will be used as described in the preceding paragraph.

G. Computed Grade-Point Average
This is based only upon graduate work graded A, B, C, D, and F. (A = 4, B = 3, C = 2, D = 1, F = 0.)

Section VII. Graduate Appointments
A. Scholarships
Scholarships are competitive and are awarded on merit.

1. Eligibility for graduate scholarships and fellowships will include: (a) registration in the Graduate College; (b) a grade-point average of at least 3.0; (c) a GRE score of 1100 or above; (d) being nominated by the Graduate College Dean; and (e) a satisfactory rate of progress in completing the program for the degree.

2. Preference will be given to candidates for the Doctoral degree.

3. Recommendations for graduate scholarships may be made to the Graduate College by the appropriate department, executive, director, or dean. A graduate scholarship may be awarded whether or not a student holds an assistantship. The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive fee assessed. Scholarships will be credited to the student's University account.

B. Graduate College Fellowships
Fellowships are awarded by the Graduate College upon recommendation by departments to students with outstanding academic records. Fellowships must be registered as full-time students. The primary purpose of the awards is to permit an advanced student to complete his or her dissertation or creative project and take the degree. Other terms of the award will be established by the Graduate College Dean in consultation with the Graduate Council.

C. Faculty Research Assistantships
Faculty research assistantships are awarded to qualified graduate students and are for 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 for research. Not more than 20 hours of service per week are required of a full-time student. Other part-time service is scaled in proportion, and a limited academic credit is permitted (see "Section III.D."). Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other periods of time by special arrangement. Appointments vary with the qualifications of the applicant and the amount of service rendered. Faculty research assistantships appointed by the Graduate College pay their own taxes. Graduate appointments beginning in August are usually made by the Graduate College Dean upon recommendation of the various departments in March of each year, although applications may be considered at any time. Appointments should be made on the form provided by the Graduate College, and should be confirmed by written recommendations and/or a letter substantiating the student's qualifications.

D. Graduate Assistantships
These assistantships serve two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both objectives, graduate assistantships are awarded to graduate students who show exceptional promise as teachers and are selected for graduate assistantships. All appointments are made by the dean of the appropriate college on recommendation of the department.

E. Eligibility for Scholarships, Fellowships, and Research Assistantships
Scholarships, fellowships, and research assistantships on the Graduate College budget must be registered in regular students in good standing in the Graduate College. Appointments will be terminated when registration and/or studies in the Graduate College are terminated. In no instance may a student be promoted or reassigned. An appointment is terminated upon approval for admission to the Graduate College by the Director of Admissions.

F. Dismissal of Assistantships
A unison 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. Research Associateships and Postdoctoral Fellowships
These provide for independent research. Appointment is made through the Office of the Vice President for Academic Affairs.

H. Credit
No academic credit is allowed for the teaching or research service for which the student receives compensation in a graduate or faculty research assistantship.

I. Loans
Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See "Financial Aid" in the "Learning at Iowa" section of the Catalog.

J. 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.

Section VIII. Advanced Programs Offered in the Graduate College
The subject areas in which the Graduate College offers degree programs are listed under "Advanced Degree Programs" at the beginning of the "Graduate College" section of the Catalog.

Section IX. General Requirements for Advanced Degrees
A. Application for Degrees
The student must file an application for an anticipated degree with the registrar not later than ten weeks after the start of the semester or quarter in which the degree will be conferred. The student must have the application signed by his or her adviser. Failure to file the application by the deadline will result in postponement of graduation to a subsequent session.

B. Enrollment in Final Session
The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following paragraphs. Students who must register for the semester in which the degree is to be conferred must be enrolled in the University at the time of this requirement by registering for an independent study, research, or thesis activity in the practice in the various departments. Doctoral candidates who have completed all work except for the final examination may register for the postcomprehensive examination registration described in "Section XII.A." Each requirement must be approved by the graduate college Dean.

Master's candidates who have completed all work except for the final examination may register for the 0.000 Master's Final Examination at a fee equivalent to the "postcomprehensive registration" if such registration is appropriate. Registration in a correspondence course will not satisfy this requirement.
Students completing all requirements (including the final examination and thesis defense) for a graduate degree while enrolled in an independent study session must receive their degrees in the following academic year without additional registration.

Section X. Master’s Degrees

A. Kinds of Degree

Master’s programs require a minimum of 36 semester hours to the Master of Arts degree, Master of Science degree, Master of Business Administration degree, Master of Comparative Law, Master of Arts in Teaching, degree, or 30 semester hours to the master’s degree as approved by the graduate faculty.

B. Plan of Study

The applicant for a master’s degree must file a plan of study approved by the advisor and the departmental executive with the Graduate College within the session in which the degree is to be granted and for a date to be established by the Graduate College. The plan shall meet the requirements for the degree approved by the graduate faculty. (See also Section IV.D. Departmental Regressions and Dismissals of Information.)

C. Major and Related Fields

The plan of study required provides for reasonable concentration in the major field of interest and, subject to the approval of the major departments, may include related subjects from other departments.

D. Residence Requirement

Of the minimum of 36 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa, after admission to a departmental program in the Graduate College. Various forms of electronically delivered instruction toward fulfillment of this 24-hour residence requirement (see "Section II. C. Educational Registration") is in addition to regular on-campus registration. However, at least 12 semester hours on-campus are required, except for those departmental programs which ensure sufficient interaction between the student and the graduate faculty and have received approval from the Graduate Council and the Academic Policy Committee of the Graduate College for reduction of this on-campus requirement.

E. Reduction of Old Credits

Credits for a master’s degree dating back more than 10 years from the session in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Professional Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master’s degree if it is taken after the student has earned a bachelor’s degree, or has completed work equivalent to the program required for a bachelor’s degree at The University of Iowa. The work accepted from the professional college will be directly related to the 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. The work completed while registered for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for nondissertation degrees in the Graduate College only when the student is registered in an appropriate kind degree program.

G. Two Master’s Degrees

The granting by this University of two master’s degrees simultaneously or in succession requires the satisfaction of all requirements for each degree separately, including two theses where a thesis is required for each, and two minorizations, with a minimum combined total of 60 semester hours of graduate credit.

H. Master’s Degree with Thesis

Not more than nine semester hours of credit for thesis research and writing shall be counted in satisfying the 36-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 submitted 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 copy of the thesis must be submitted with the Graduate College not later than two weeks 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, including the completion of a course prescribed by a department and approved by the Graduate Council.

J. Final Examination

The requirements for all master’s degrees include a final examination which, at the discretion of the major department, may be written or oral, or both. Such an examination will not duplicate course examinations. It may be evaluated by the examining committee in a satisfactory and unsatisfactory, with two unsatisfactory votes making the committee report unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the examination.

If the department so recommends, a candidate for the master’s degree may present himself or herself for non-thesis, but not sooner than the next regularly scheduled examination period in the following session.

The examination may be repeated only once.

Upon recommendation of a department, the non-thesis candidate can receive 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 committee 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, or literature. It is designed for students preparing themselves professionally in such fields as painting, design, mural decoration, sculpting, playwriting, acting, producing, stage design, musical performance, composition, instrumentation, poetry, fiction, and translation. Central to the program is an intensive study, or an extended period of study in an area, a painting, a musical composition, or any other work of approved artistic accomplishment.

The program for the Master of Fine Arts requires at least two years of residence credit in a graduate college. This requires a minimum of 48 semester hours of graduate credit, at least 24 of which must qualify for residence credit at this University. A Master of Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for each degree separately with a minimum combined total of 60 semester hours of graduate credit.

For other requirements see "Section XII. Plan of Study; "G. Major and Related Fields," "E. Reduction of Old Credits," "F. Limit on Professional Course," "A. Master’s Degree with Thesis;" "F. Final Examination;" and "K. Examining Committee."
B. Specialist in Education Degree

This degree is granted upon completion of a State approved two-year postsecondary program designed for students preparing themselves professionally in such fields as teaching, administration and supervision, and special services.

Of the minimum of 60 semester hours required for the degree, at least 24 semester hours must be completed in residence at this University, of which 15 semester hours must be earned while the student is on-campus within one 12-month period or during two summer sessions.

Twelve of the 60 semester hours are prescribed in the area of specialization. The others are in cognate fields, supervised experience, and electives. Four semester hours of research culminate in a written report.

Courses successfully completed ten or more years prior to the final examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work.

Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

Other requirements and regulations applicable to the educational specialist degree are the same as prescribed for the one-year master's degree in "Section X.B. Plan of Study"; "C. Major and Related Fields"; "F. Limit on Professional Courses"; "I. Final Examination"; and "K. Examining Committee."

A master's degree may be earned while in residence for the educational specialist degree provided the student meets all the requirements for the master's degree in question.

C. Master of Social Work Degree

The M.S.W. degree is conferred by the University upon students who give evidence of knowledge and competence in the profession of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at The University of Illinois.

2. A minimum of 60 semester hours in graduate social work, including a research requirement.

3. A final examination

A thesis is optional.

The requirement of 60 semester hours may be computed to mean that the student who can satisfy the faculty of the school that he or she has accomplished in the junior or senior undergraduate years, the clear equivalent of part or parts of the graduate curriculum in social work may be permitted, upon recommendation of the faculty of the school, to qualify for the M.S.W. degree on 60 semester hours. In no case may a student qualify for the degree on less than 48 semester hours of graduate credit.

The curriculum is organized into four general areas: social work practice, human growth and behavior, the social services, and research. During the two-year graduate program, class work is combined with field practice in various settings. Since class work and field practice are arranged sequentially, students can enter the School of Social Work in August.

For other requirements, see "Section X.B. Plan of Study"; "G. Reduction of Old Credits"; "L. Limit on Professional Courses"; "M. Master's Degree with Thesis"; and "K. Examining Committee."

Section XII. Doctor's Degrees

A. Character of Degree

The Graduate College awards two doctorates, the Doctor of Philosophy and the Doctor of Musical Arts. The doctorate is the highest degree awarded by the University. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.

B. Prerequisites

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject proposed for investigation or, in the case of deficiency, must register for prerequisite courses.

C. Residence Requirement

The candidate is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time enrollment in the Graduate College. At the University, beyond the first 24 semester hours of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (nine semester hours minimum) in each of two semesters; or (2) enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least a part-time assistantship maintained by the department as contributing to the student's doctoral progress. (For purposes of record and assessment of fees, student registration shall reflect accurately the amount and kinds of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 72 semester hours of graduate work.)

D. Plan of Study

The development of a plan of study at the doctoral level is the responsibility of the student working together with his or her advisor. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examinations. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examinations.

E. Ad Hoc Interdisciplinary Programs

A student may prepare a proposal for an interdisciplinary course of study, including the plan for the comprehensive examination, under the sponsorship of at least three faculty members of the department(s) which shall be designated as the sponsoring department(s). Final approval of such individual programs is granted by the Graduate College deans, who may add members to the student's advisory committee from other closely related departmental units. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, parenthetically, the name of the sponsoring department.

F. Reduction of Old Credits

Courses taken ten or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

G. Limit on Professional Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree, or has completed work equivalent to that required for a bachelor's degree at The University of Illinois. The work accepted from the professional colleges must be directly related to the student's major field of study in the Graduate College, and the plan of study must be approved by the student's advisory committee. Work completed while registered for a professional degree, including the professional course work, will not be counted as part of the graduate degree which must be spent in residence as a doctoral student on the campus of the University.

H. Joint Program for Master's and Doctoral Degrees

Those students who expect to continue their training through the doctoral degree may file a joint program for the master's and doctoral degrees. The master's examination may be combined with the comprehensive examination, or the candidate may take the doctoral degree for these candidates. The examining committee will select the specific course work for the final examination for the master's degree and for the comprehensive examination. Upon recommendation of the department and approval by the Graduate College dean, students who are well qualified by previous training may submit a plan of study that
leads directly to the doctoral degree without earning the master’s degree as an intervening part.

I. Requirement in Foreign Languages

There is no general Graduate College requirement in foreign languages. Those departments which do require competence in one or more foreign languages establish standards as to the extent and level of competence, as well as methods of testing. Specific requirements will be found in the descriptive statements of individual departments and procedures (see “Section 9.0”). Departmental executive officers are responsible for reporting completion of requirements to the registrar for entry on the student’s record.

Specifications of departmental requirements in foreign languages are filed in the Graduate College office and may be changed upon the initiative of the department.

J. Comprehensive Examination

The candidate must pass a comprehensive examination, consisting of written or oral parts, both at the discretion of the major department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study and the approval of the dean of the Graduate College. A student must be registered in the Graduate College at the time of the comprehensive examination, which must be passed not later than the session prior to the session of graduation. This examination, administered only on campus, is intended to be an inclusive examination of the candidate’s mastery of the major and related fields of study, including the tools of research in which he possesses competence has been certified.

The comprehensive examination is not a deterred qualifying examination. It is intended to judge the candidate’s mastery of the subject or a near the end of the list or the list or any preparation and prior to the list of examination. The comprehensive examination and the final examination, which is a concerned chiefly with the list in the thesis and related subjects, are the two principal examinations for the doctoral degree.

The comprehensive examination will be evaluated by a convened meeting of the committee and reported as satisfactory, satisfactory with reservations, or unsatisfactory to the Graduate College office within 14 days after the completion of the examination. Two “unsatisfactory” votes will make the committee report unsatisfactory.

In the event of a report with two or more votes of “unsatisfactory” or “unsatisfactory with reservations,” the exact stipulations of the committee should be found in the committee form. The statement must specify the time allowed for satisfying the stipulation and must be specific in defining the area if further examination in a particular area is required, or in describing any additional courses or other procedures that are required. The executive officer of the major department should promptly send a written report to the Graduate College giving the date of removal of “unsatisfactory.”

In case of a report of unsatisfactory on a comprehensive examination, the committee may grant the candidate permission to present himself or herself for reexamination not sooner than four months after the first examination. The reexamination may be repeated only once, at the option of the department.

K. Post-Comprehensive Registration

The student is required to register each semester after passing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be readmitted to candidacy until the student has submitted an application which has been approved by the student’s adviser, the departmental executive, and the Graduate College dean.

All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty. The student should register for the courses, research, and thesis necessary to complete the plan of study.

When the registrations required for the plan of study have been completed, the student may meet the continuing registration requirement by registering for the 4505 Ph.D. Post-Comprehensive Registration and paying a special minimum fee for any semester in which the department (i.e., department chair or director of graduate study) and the student’s adviser determine that the student is neither making significant use of University facilities (except library privileges) nor purporting consultation with the faculty. It is understood that no registration for a summer session is required when the student makes no use of University resources, unless the student is taking a degree at the end of that session or unless enrollment is required by the department.

L. Dissertation for the Doctoral Degree

One copy of the dissertation, complete and in final form, must be presented at the Office of the Graduate College before the final examination, and not later than four weeks before the graduation date on which the degree is to be conferred.

Two copies of the approved dissertation must be deposited at the Office at least ten days prior to the graduation date. The final version can be no later than the end of the semester (summer excluded) following the semester in which the final examination is passed; failure to meet this deadline will require retitubation of the student.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be in rolILED 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 adviser. The abstract is published in the Journal of Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University Library.

If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the librarian will help the student and faculty adviser work out an appropriate method of preparing the work, if such help is needed. Once the accompanying manuscript is accepted, it is treated the same as other theses.

Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

M. Dissertation Fee

A nonrefundable dissertation fee is charged each candidate to cover the cost of processing the dissertation and abstract.

Final Examination

The work for the degree culminates in a final oral examination administered on campus. This examination should include: a critical inquiry into the purposes, methods and results of the investigation—not a mere recapitulation of the procedures followed—and intrinsically questioning on essential results. The examination must be held in immediate context of the investigation.

The final examination may not be held until the next session after the student passes the comprehensive examination nor until the thesis is accepted for final deposit by the Graduate College; however, a student must pass the final examination no later than five years after passing the comprehensive examination. Failure to meet this deadline will result in a recessed only on the student to determine in his or her qualifications for taking the final examination. The examination to be followed are those as for the comprehensive examination. (See “30.1. Comprehensive Examination.”)

Final examinations for the doctorate are open to the public. Members of the faculty of the Graduate College are especially invited to attend and, subject to the approval of the chair, to participate in the examination.

The report of the final examination is due in the Graduate College office not later than 48 hours after the examination. The final examination will be evaluated as satisfactory or unsatisfactory. Two unsatisfactory votes will make the committee report unsatisfactory. In case of a report of unsatisfactory for the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only once under the option of the major department.
O. Examining Committees

The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Graduate College dean upon recommendation of the major department, except that departments may request the dean's permission to replace one of the five members of the graduate faculty by a recognized scholar of professorial rank from another academic institution. A member of the graduate faculty from outside the major department is included in the comprehensive examination. For the final examination one member of the committee must be a member of the graduate faculty from outside the major department.

Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees. A voting member may be added at the discretion of the Graduate College dean.

Section XIII. Exceptions

Petitions to waive these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>000:000 Ph.D. Comprehensive Registration</td>
<td>0 s.h.</td>
<td></td>
</tr>
<tr>
<td>000:001 Master’s Final Registration</td>
<td>0 s.h.</td>
<td></td>
</tr>
<tr>
<td>000:107 CRE Faculty Program</td>
<td>arr.</td>
<td></td>
</tr>
<tr>
<td>000:300 CRC Scholar</td>
<td>arr.</td>
<td></td>
</tr>
<tr>
<td>000:403 Iowa Liverpool Exchange Program</td>
<td>arr.</td>
<td></td>
</tr>
</tbody>
</table>
Program Objectives

The overarching objective of formal legal education is to establish and maintain for a lifetime of professional growth. The teaching staff at the University of Iowa College of Law is committed to this objective. The curriculum and course offerings are designed to provide the legal education and training necessary for the practice of law. The curriculum is designed to provide the legal education and training necessary for the practice of law.

Program of Study

Full-Time Policy

The faculty believes that students receive a better legal education when they are enrolled in a full-time program. Full-time students typically register for 15 hours of course work each semester. The full-time program is designed to provide the legal education and training necessary for the practice of law. The full-time program is designed to provide the legal education and training necessary for the practice of law.

Options for Full-Time Study

The college offers two starting dates for entering students: late May (at the beginning of the summer session) and late August (at the beginning of the fall semester). Most students elect to enter law school in the fall and expect to graduate in May of their third year of study. Some students also elect to attend summer session at any point during their career.

A class of up to 45 students is allowed to enter law school in May of the year for which they applied. Students in the entering class complete nearly a full semester of work in the first eleven-week summer session, and if they remain in the accelerated track by attending summer school in each subsequent summer, they can graduate nine months earlier than students in the regular track. Thus, an accelerated student who began law school in the summer of 1986 may graduate in August 1988. Students who begin in the accelerated program, however, are not required to complete an accelerated track, but may switch to the regular three-year program of study.

Both the accelerated and regular programs consist of 30 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 any courses in which they have previously participated. No student may take more than 17 semester hours per semester or 30 semester hours in summer session without permission of the dean.

Summer Session

The summer session consists of two periods of five weeks each, of four weeks each, during which time the eight upperclassmen and three to four first-year courses are offered. Nonaccelerated students may attend either or both periods. Accelerated students attend the entire 14-week session.

First-Year Small-Section Program

One of the distinctive benefits of legal education at the University of Iowa is the first-year small-section program, which integrates training in basic lawyer skills into substantive courses taught by regular, full-time faculty. The program includes in-depth, student-centered methods of instruction. The program's purpose is to provide students with the knowledge and skills necessary to become effective lawyers.

In the fall semester (or summer session for accelerated students), the first-year class is divided into two sections of approximately 20 students. The spring semester small-section class size varies from year to year, but has included virtually every course in the first-year curriculum.

In the small-section course, students are given a series of challenging assignments, each with a different educational objective. Faculty members provide extensive critiques of students' work and the students' work is evaluated in class and in individual conferences.

Upper-Class Program

In the second and third years, students have the opportunity to gain exposure to a broad array of substantive areas of law, to concentrate on courses that interest and engage their interests, and to develop their writing and research skills in areas of particular interest (e.g., through specialized courses and seminars). As they develop their specialization in these areas, they also continue to take courses designed to develop their research and writing skills.

Each student also has the opportunity to work on a legal clinic. Each student earns at least one credit for participation in any of the clinics, and students may earn additional credits by participating in a legal clinic.

Legal Clinic

Students who have completed one-half of the upperclassmen's and upperclassmen's legal clinics, which offers opportunities for students to study their theoretical knowledge to real cases under the supervision of faculty members and other attorneys. Clinic students participate fully in writing, fact investigation, pretrial conferences, and in the final conference proceedings.

Students in the Legal Internship Program are assigned to work as legal assistants in state and local government agencies or in private law firms. These positions allow students to gain practical experience in the legal profession and to develop their writing and research skills.

Law 361
work in other aspects of the legislative process. A student may earn up to a total of 15 semester hours of credit in the clinic program, although students taking courses in other schools or colleges of the University may receive no more than 20 hours of credit for each course plus clinic. In addition to those programs carrying academic credit, the College of Law participates each summer in the County Attorneys Internship Program, through which students work as paid employees for county attorneys throughout the state.

Joint Law and Graduate Degree Programs
The College of Law has developed a program with a number of departments of The University of Iowa Graduate College, under which students simultaneously pursue degrees in both colleges. Under this program, a student takes a course that is weighted toward both degrees, the course can, within limitations, be counted toward the semester hour requirements of both programs, thereby reducing the time required to obtain the two degrees separately. Hopefully, the joint-degree student will contribute to one discipline the insights and experience gained in the other. Graduate departments with which joint degree programs have been initiated include Accounting, American Studies, Anthropology, Business Administration, Computer Science, Counseling Education, Economics, Education, Educational Administration, English, Finance, Journalism and Mass Communication, Forestry, Hospital and Health Administration, Industrial Relations and Human Resources, Library and Information Science, Music, Philosophy, Political Science, Religion, Sociology, Social Work, and Urban and Regional Planning. Further information about joint degree programs is available from the Dean of the College of Law.

A two-year program leading to a commission in the United States Army is available to students entering the College of Law. Information about this program may be obtained from the UI Department of Army Military Science.

International Legal Studies
In keeping with its educational mission of encouraging the acquisition of both broad social awareness and technical professional competence, the College of Law offers a strong program of study in the rapidly expanding fields of international, comparative, and foreign law. It does so essentially for three reasons: first, because virtually everyone in this era of accelerating global interdependence may find himself or herself confronted by problems that require knowledge about the understanding of international law and foreign legal systems; second, because lawyers, as professionals and community leaders, influence both directly and indirectly the theory and conduct of United States foreign policy; and third, because the study of public international law, still in its formative stages, provides unique insight into the nature of law and legal process both globally and nationally.

Master of Comparative Law Degree Program
The College of Law offers a one-year Master of Comparative Law (M.C.L.) degree to foreign-trained lawyers coming from outside the Anglo-American legal tradition. Candidates take a seminar oriented them generally to the American legal system and write at least one substantial research paper. The balance of their course work is taken from the regular course offering of the College of Law. In recent years graduates of this program have included lawyers from the Federal Republic of Germany, France, Italy, Japan, the People's Republic of China, the Republic of South Korea, and Thailand.

Student Life
There are currently 11 student organizations at the college. These co-curricular programs, each managed by students, offering social, arts, religious, and other programs which students find helpful in their university careers.

The college operates a placement office to assist students and alumni in securing suitable summer and permanent employment.

Financial Aid
A comprehensive financial aid program at the College of Law attempts to assist all students who need funds in order to permit them to attend school full time. However, since the financial resources of the law school are inadequate to subsidize the full cost of a legal education for every needy student, applicants and their families are expected to make a maximum effort to provide a reasonable portion of the student expenses. Applicants are urged to contact the financial aid office at the college for further information about types of aid available.

Admission
Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the College of Law. The services that the graduate of the College of Law may be called upon to perform are very varied, and the possible fields of endeavor so broad and diverse, that the college prescribes no uniform undergraduate program for those planning to enter law school. With increasing numbers of foreign law graduates, each student should develop an approach to his or her studies and develop that student's particular interests. Nevertheless, the college endorses the three basic objectives recommended by a committee of the Association of American Law Schools. Anyone studying at law school should keep these objectives in mind while planning an undergraduate course of study: education for comprehension and expression in written language; for a greater understanding of human institutions and values; and for education for greater power in thinking. That committee strongly emphasizes that undergraduate education of students for a full life through liberal education is far more important than education directed too pointlessly toward later professional training and practice. Students are urged not to sacrifice the broader perspective for detailed specialization.

Application Procedures
Applications may be obtained by writing to: Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. A student must file the application for admission by March 1 preceding the summer session or fall semester in which he or she wishes to enter. Applications should be sent to the Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. An examination of $10 must accompany each application. The college's baccalaureate degree is acknowledged to satisfy the requirements of the University of Iowa. This fee is not refundable except for reasons provided in the application. Students from disadvantaged backgrounds who cannot afford this fee should write to the Dean of the College of Law for information about a waiver of this fee.

The applicant is responsible for submitting an official transcript from each college or university he or she has attended to the Law School Admission Services (LSAS), Box 2006, Newton, PA 18060. The College of Law must receive the applicant's LSAS report prior to the end of the first week in April in order to consider the application.

In the LSAT/LSAT II registration packet, the applicant will find a Law School Application Matching Form. To protect the privacy of the applicant, the college agrees not to release LSAT/LSAT II reports to any school that does not furnish LSAS with a Law School Application Matching Form.

The University of Iowa cannot process an application without a Law School Application Matching Form. Therefore, applicants should submit the form with their application. Otherwise, the application will not be reviewed and will be delayed until the form is received.
Law School Admission Test

Each applicant for admission must take the Law School Admission Test (LSAT) after administered by the Law School Admission Service, Box 3000, Natlich, PA 18445-0300, and have her or his test scores forwarded to the College of Law along with the LSDAS report. The test is given several times each year and may be taken at various locations in the United States and abroad. Applicants are urged to take the test during the fall preceding the fall of the year they desire to enter the college for which they are making application.

The last test that will be considered by the admissions committee for the summer or fall first-year class is the test given in February. However, if the test is taken in February, it may put the applicant at a competitive disadvantage since it takes at least four weeks for the college to receive the results. February testers must have their applications on file with the College of Law prior to the March 1 deadline. Foreign student applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL), which is administered by the Educational Testing Service, Princeton, New Jersey (384).

Deposit

Applicants accepted prior to April 1 are required to make an advance nonrefundable deposit of $50 by April 1. Applicants accepted after April 1 must make the deposit within two weeks of receiving notification, and the deposit is not refundable under any circumstances. However, the deposit is due within two weeks after application is taken at the local financial aid application. For those who enroll, the deposit is credited toward the student's first semester's tuition. An applicant who fails to make the deposit within the time specified forfeits all or a part of her place in the entering class.

Evaluation Process

For a more detailed description of the admissions evaluation process, please consult the college's bulletin, which is available from the Admissions Office of the College of Law.

Admission to the Iowa Bar

A rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the Iowa bar to register that intention with the court no more than 60 days after beginning law school. Details are available from the dean's office in the College of Law upon registration of a student in the college or from the clerk of the Iowa Supreme Court.

Courses

Course descriptions are listed in the college's bulletin, which is available from the Admissions Office of the College of Law.

1901 Cooperative Education Internship 1-5 s.h.

1902 Cooperative Education Internship 1-5 s.h.

1910 Legal Methods 3 s.h.

1914 Criminal Procedure 3 s.h.

1915 Contracts and Sales Transactor I 3-4 s.h.

1916 Contracts and Sales Transactor II 3-4 s.h.

1920 Criminal Law 3 s.h.

1921 Criminal Procedure 3 s.h.

1923 Civil Representation 3 s.h.

1932 Property I 3-4 s.h.

1933 Philosophy of Law 3 s.h.

1934 Property II 3-5 s.h.

1939 An Introduction to Professional Practice 2 s.h.

1941 Legal Aspects of Health and Medical Care 3 s.h.

1950 Human Rights in the World Community: Problems of Law and Policy 3 s.h.

1955 Introduction to International Law 3 s.h.

1961 Advanced Civil Procedure 3 s.h.

1966 Administration of Estates and Trusts 3 s.h.

1968 Administrative Law 3 s.h.

1971 Admiralty Law 3 s.h.

1973 Advanced Criminal Procedure 3 s.h.

1974 Antitrust Law 3 s.h.

1975 Appellate Advocacy I 3 s.h.

1976 Appellate Advocacy II 3 s.h.

1977 National Mock Court Competition 1 s.h.

1978 Junior International Mock Court Competition 1 s.h.

1980 Bankruptcy Reorganization 3 s.h.

1981 Children and the Law 3 s.h.

1984 Business Planning 3 s.h.

1987 Arbitration Law and Practice 3 s.h.

1988 Federal Court I 3 s.h.

1989 The Civil Justice System 3 s.h.

1990 American Legal History 2 s.h.

1991 Commercial Paper 3 s.h.

1992 Commercial Transactions 3 s.h.

1993 Consumer Law 3 s.h.

1994 Consumer Protection 3 s.h.

1995 Corporation I 3 s.h.

1996 Corporation II 3 s.h.

1997 Federal Income Tax I 3 s.h.

1998 Debtor-Creditor Law 3 s.h.

1999 Corporations III 3 s.h.

2000 Business Mediation 3 s.h.

2001 Environmental Law 3 s.h.

2002 Employment Discrimination 3 s.h.

2003 Employment Discrimination II 3 s.h.

2004 Entertainment Law 1 s.h.

2005 Estate Planning Problems 3 s.h.

2006 Evidence 3 s.h.

2007 Evidence Theory and Practice 4 s.h.

2008 Family Law 3 s.h.

2009 Estate Planning 3 s.h.

2010 Federal Income Tax I 3 s.h.

2011 Federal Tax Procedure and Procedures 3 s.h.

2012 Federal Policy Analysis 3 s.h.

2015 Federal Course I 3 s.h.

2015 Federal Tax Litigation 3 s.h.

2020 Forensic Analysis of Injury and Disease for Lawyers 3 s.h.

2021 Future Issues 3 s.h.

2025 Government Contracts 3 s.h.

2028 Copyrights 3 s.h.

2030 Insurance 3 s.h.

2035 Problems in International Law and Policy 3 s.h.

2036 International Organization 3 s.h.

2038 International Economic Relations 3 s.h.

2038 Jurisprudence 3 s.h.

2039 Juvenile Justice 3 s.h.

2039 Comparative Labor Law 3 s.h.

2039 Labor Law 3 s.h.

2039 Labor and Accounting 3 s.h.

2039 Labor, Taxation and Ethics 3 s.h.

2039 Corporations Accounting 3 s.h.

2039 Corporate Accounting 3 s.h.

2040 Family Law and Psychiatry 3 s.h.

2040 The Law of Electronic Media 3 s.h.

2040 Legal Control of Sexuality and Sexual Conduct 3 s.h.

2049 Professional Responsibility 3 s.h.

2049 Law Arbitration 3 s.h.

2050 Legislation 3 s.h.

2051 Introduction to Law: European Communities and Labor Law 2 s.h.
<table>
<thead>
<tr>
<th>Department</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td>372</td>
</tr>
<tr>
<td>Anesthesia</td>
<td>373</td>
</tr>
<tr>
<td>Division of Associated Medical Sciences</td>
<td>374</td>
</tr>
<tr>
<td>Medical Technology</td>
<td>374</td>
</tr>
<tr>
<td>Nuclear Medicine Technology</td>
<td>375</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>376</td>
</tr>
<tr>
<td>Physician Assistant Program</td>
<td>379</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>380</td>
</tr>
<tr>
<td>Dermatology</td>
<td>382</td>
</tr>
<tr>
<td>Dietetic Internship</td>
<td>382</td>
</tr>
<tr>
<td>Family Practice</td>
<td>382</td>
</tr>
<tr>
<td>Genetics</td>
<td>384</td>
</tr>
<tr>
<td>Hospital and Health</td>
<td>384</td>
</tr>
<tr>
<td>Administration</td>
<td>386</td>
</tr>
<tr>
<td>Human Nutrition</td>
<td>386</td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>387</td>
</tr>
<tr>
<td>Medical Scientist Training Program</td>
<td>389</td>
</tr>
<tr>
<td>Microbiology</td>
<td>390</td>
</tr>
<tr>
<td>Neurology</td>
<td>391</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>392</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>393</td>
</tr>
<tr>
<td>Orthopaedic Surgery</td>
<td>393</td>
</tr>
<tr>
<td>Otolaryngology—Head and Neck</td>
<td>394</td>
</tr>
<tr>
<td>Pathology</td>
<td>395</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>396</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>398</td>
</tr>
<tr>
<td>Physiology and Biophysics</td>
<td>399</td>
</tr>
<tr>
<td>Preventive Medicine and</td>
<td>400</td>
</tr>
<tr>
<td>Environmental Health</td>
<td>400</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>402</td>
</tr>
<tr>
<td>Radiation Biology</td>
<td>403</td>
</tr>
<tr>
<td>Radiology</td>
<td>404</td>
</tr>
<tr>
<td>Surgery</td>
<td>404</td>
</tr>
<tr>
<td>Urology</td>
<td>405</td>
</tr>
</tbody>
</table>

Dean: John W. Schreider
Associate dean, medical student affairs and continuing medical education: Richard M. Caplan
Associate dean, academic affairs: Mary Montgomery
Associate dean, continuing medical education: Richard M. Caplan
Associate dean, Veterans Administration affairs: John E. Keil
Assistant dean, administration and finance: William L. Litchfield
Consultant to the dean: Paul M. Seiboth
Professor: Richard K. Schreider
Assistant to the dean: Richard K. Schreider
Degrees offered: B.S., M.D., M.S., Ph.D.

Match Day for College of Medicine seniors
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 health colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences areas of the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through refresher, short courses, clinics, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a state-wide educational health care resource.

Beyond its academic responsibilities as the only college in Iowa that offers work toward the M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health care services. Its faculty members advise and serve on state and regional health planning councils, health boards, and various health agencies; some faculty also take part in the University's Health Services Research Center.

The College of Medicine is responsible for the associated medical sciences programs of education for physician assistants, medical technologists, physical therapists, and nuclear medicine technologists. The medical and associated medical science students have several opportunities to gain hands-on experience in physicians' offices and community hospitals. For medical graduates, the college offers family practice residency programs at 15 community hospitals in seven cities throughout the state. The college promotes and sponsors experimental programs that demonstrate methods of organizing health services at the local level. Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, The University of Iowa College of Medicine meets the requirements of all state licensing boards. Its diploma admits the holder to all privileges granted to graduates of all medical colleges in the United States. All other professional programs administered by the College of Medicine are accredited by their respective accrediting bodies. 

Faculty

Nearly all College of Medicine faculty members are full-time, their work in practice and research being part-of-not apart from—their work in teaching. Many have earned national and international honors.

Graduate Programs

The college offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, immunology, pharmacology (including toxicology), physiology and biophysics, preventive medicine and environmental health, and radiation biology. In addition, graduate degree programs leading to a master's degree are offered in epidemiology, pathology, and physical therapy.

Medical Scientist Training Program

An interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College, the Medical Scientist Training Program provides preparation for careers in medical science and academic medicine with emphasis on research and teaching. With support from the National Institutes of Health, the program integrates the requirements for doctoral training in sciences basic to medicine with the full clinical requirements of the medical curriculum. The program entails six to seven years of study. Further details are given in the program description.

Combined M.D.-Master's Degree Programs

Students who want to pursue the M.D. degree in combination with a master's degree program may do so by gaining admission both to the College of Medicine and to the Graduate College, and making degree 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 local public available areas, without regard to their departmental units or to the separation of graduate and nongraduate training. Notable among these are the interdisciplinary programs in endocrinology, neurology, and immunology, in which degrees are not offered. Students can determine emphasis through appropriate selection of a study program. Further information can be obtained from the associate dean for academic affairs.

The following centers are subdivisions of the College of Medicine:

Clinical Research Center

The Clinical Research Center provides the setting for patient-oriented research of disease processes. Studies of normal human physiology, immunology, and psychology also are conducted. This important resource of the college is fully financed by federal monies, enabling all faculty members to conduct carefully supervised studies that cannot be accomplished with equal precision with existing beds of the affiliated hospitals.

Cardiovascular Research Center

The Cardiovascular Research Center coordinates life research and training programs related to cardiovascular diseases and encompasses the following federally funded programs: The Regulation of the Peripheral Circulation, the Specialized Center of Research in Arteriosclerosis, Specialized Center of Research in Ischemic Heart Disease, Injured Research Clinic Trial, several training programs, and a coordinated program of other interdisciplinary research supported by a number of individual project grants. Gifts from private donors have underwritten construction of two floors of cardiovascular research laboratories on top of the Medical Research Center.

Diabetes and Endocrinology Research Center

The Diabetes and Endocrinology Research Center coordinates research and training programs related to diabetes and associated metabolic diseases. It was established in 1970 with support from the National Institute of Arthritis, Metabolism, and Digestive Diseases.

Cancer Center

A Cancer Center was established in 1980 to coordinate the efforts of the faculty and staff of the University in research, education, and demonstration programs related to all aspects of cancer.

Digestive Diseases Center

This center was formed in 1965 to study neural and hormonal controls of gastrointestinal function. It includes research centers on gastrointestinal normal models, motility, and analysis of data and biospecimens.

Alzheimer's Disease Research Center

This recently formed center studies the neuropathology and neurological behavior associated with Alzheimer's disease and related conditions with a view to improved diagnosis and treatment.
Educational and Patient Care Facilities

First and second year classes are taught in the Brown Science Building and the Medical Laboratories.

A Health Sciences Library is a vital resource centrally located on the medical campus.

Students acquire clinical experience in the 1,643-bed University of Iowa Hospitals and Clinics complex, in the adjacent 352-bed Veterans Administration Medical Center, and in a score of affiliated hospitals and ambulatory care centers throughout the state.

College of Medicine and College of Dentistry faculty members compose the 461-member clinical staff of The University of Iowa Hospitals and Clinics, whose 1,643-bed clinical services are directed by the deans of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 281 resident physicians and dentists who make up the house staff of the hospitals and clinics, where facilities are provided for training all major medical specialties, for residencies in all such specialties, and for fellowships in a number of subspecialties.

The University of Iowa Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about The University of Iowa Hospitals and Clinics, Veterans Administration Medical Center, and related academic and health service units, see "The University of Iowa Health Center" in the "Special Resources at Iowa" section of the Catalog.

Research Facilities

A number of facilities that support the research and teaching of the College of Medicine faculty are administered through the dean's office. University of Iowa research facilities housed in the College of Medicine include the Cell Surer Laboratory, Facility for Protein Structure Studies, Electron Microscopy Facility, a Computer-Assisted Image Analysis Facility, (See "Research Activities" in the "Special Resources at Iowa" section of the Catalog.)

The animal care facility arranges for the purchase and maintenance of a record-keeping of a wide variety of animals.

The bioengineering facility provides space for electronic design, construction, and repair services.

The Office of Consultation and Research in Medical Education is a center of educators and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation,杀线和 cooperates in education research endeavors, and conducts teacher education activities.

The medical instrument facility designs and fabricates scientific equipment, providing precision machine services.

The medical graphics, photography, and television sections offer consultation, design, and production services in these various art forms. The spectrum of composition is greatly expanded by Geographics, a computer-generated graphics system.

The IC facility meets federal guidelines for radioactive iodine-131, the small-particle contamination. It also can be used for research in other biohazardous or radioactive procedures.

A facility for mass spectrometry provides service for structural study of important biological molecules and their analysis by an interface with a gas chromatograph.

Doctor of Medicine

The University of Iowa College of Medicine presently accepts 175 freshman students each year into its four-year course of study leading to the degree of Doctor of Medicine (M.D.).

The curriculum in medicine at The University of Iowa is based on a strong tradition of excellence. It is evaluated and renewed continually to reflect the changing needs of the new physician and of society.

Basic Medical Sciences

The first three semesters present this core of sciences basic to the study of medicine:

First Semester

99.163 Biochemistry for Medical Students is centered around a series of clinical situations. The language of this discipline is presented in the context of problems the physician will meet. In small group discussions that follow the clinical series, the student starts to use various problem-solving techniques.

60.163 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical radiology and surface anatomy with clinical correlations. A complete dissection of the human body is undertaken, and the relationship to the living system is stressed.

60.104 Medical Embryology offers lectures on human embryology with emphasis on the clinical aspect of development. Registration is limited to medical students; graduate students are referred to 60.217. The course is offered fall semesters.

68.105 General Histology for Medical Students provides a course of study for the core information concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

115.102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine and to increase awareness of personal and social values. The course provides students with small group experience through which they learn about and improve interpersonal skills. Emphasis is given to the interpretation of clinical data in medical journals.

Second Semester

72.212 Medical Physiology offers the student an understanding of responses that an organism gives to external stimulus and provides a basis for understanding the integrated functions of organs. Much of the material in these two courses is presented from a clinical point of view in small discussion groups, which have essentially replaced laboratory exercises, the students present their evaluations of the physiological mechanisms at work in the clinical material. Some demonstrations are used.

61.103 Medical Microbiology includes immunology and presents a core of information on the classification and mode of action of infectious agents, as well as aspects of body response to these agents. Laboratory work plays an important role in this course.

59.214 Medical Neurosciences is an integral course dealing with the basic principles of neurophysiology and neuroanatomy with the human central nervous system. The laboratory primarily involves the anatomical study of spinal cord and brain.

69.201 General Pathology for Medical Students introduces students to the more important sections of cellular biology and to the study of diseases of the anatomy and their system approach. Student-centered learning is fostered by discussion groups and practice in case analysis.

63.199 Preventive Medicine presents fundamentals to help prepare the student in some of the sociologic, economic, and public health aspects of medical practice.

71.106 Pharmacology for Health Sciences: Medical pharmacology bridges the clinical and basic sciences and provides students with principles that must be understood in
order to describe properly the actions of drugs in the patient.

Several elective courses are available to students during the third semester. These courses carry 2 semester hours of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Typical examples are Perspectives in Aging, Human Nutrition, and Spanish for Health Professionals.

Introduction to Clinical Medicine

A major interdisciplinatory course, 50111 Introduction to Clinical Medicine, fills the fourth semester. It includes participation by a large proportion of the faculty and is vital in providing a student with the tools for a lifetime of patient care.

The first series of mornings is devoted to introducing the patient as a person and giving guidance in interviewing, counseling and history-taking. Following this is an intensive review of clinical medicine on an organ system basis, given by teams of clinicians and basic scientists. The focal point of mornings is spent in areas of medicine that do not fall naturally into organ systems, and on re-emphasis of some key subjects.

Throughout the 16 weeks of this course, students spend afternoons acquiring and practicing the skills of the clinician in history taking and physical examination. Habits of care, concern, and cooperation needed by all physicians are established in this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level of skill achieved. If further work is needed, guidance and assistance are provided.

Clinical Clerkships

The third year includes the required clinical clerkships and presents each student with opportunities to work with physicians in almost all disciplines as they care for their patients. Students spend nine weeks in a special curriculum in surgery, pediatrics, psychiatry, and obstetrics and gynecology, and two weeks each in anesthesiology, dermatology, neurology, obstetrics-gynecology, and surgery. The clerkship provides an opportunity for the student to choose a specialty area in which to complete his or her clinical training. The student is assigned to a particular hospital, and it is here that the student spends his or her nine weeks in the respective specialty.

The clinic clerkship year is the most critical period of time in medical education, for this is when the student takes on the posture of a physician to learn first-hand the complexities of medical science and to develop the skills necessary for patient care.

Period of Selective Study

Following the clerkships, the fourth year provides a period of selective study, giving the student many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify the student to participate in a variety of medical experiences, ranging from advanced courses in specialty areas to community-based clerkships in primary care.

Financial Aid

The College of Medicine provides financial assistance on the basis of demonstrated financial need. Most aid is in the form of loans. The Health Professions Student Loan and Guaranteed Student Loan are federally funded or sponsored programs. The Medical Education Assistance Program, Garrett Brown Medical Student Loan, and Shedd Loan are College of Medicine programs. The Dr. George Scovell Medical Student Loan is available to Iowa residents through the Iowa Medical Foundation of the Iowa Medical Society.

A limited number of grants are awarded each year to students who demonstrate exceptional need. In certain situations, small, short-term emergency loans may be obtained through the college.

Information and advising on financial aid can be obtained through the Office of Student Services, College of Medicine.

Educational Opportunities Program

The Educational Opportunities Program provides financial and academic assistance to disadvantaged students from groups that are underrepresented in American medicine.

Admission to the M.D. Program

The College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. Preliminary applications are processed by AMCAS beginning June 15 of the year preceding the beginning of the class for which application is being made. Prospective students are urged to apply as early as possible. The closing date is December 15.

Final application will be forwarded to applicants whose AMCAS applications pass a review conducted by the College of Medicine. A $10 fee must accompany the final application from applicants who have not completed work in residence at The University of Iowa. This fee is not refundable except to residents of Iowa who are deferred admission.

Each applicant must file with the University Office of Admissions an official transcript from each college he or she has attended.

Requirements

Any applicant for admission to the College of Medicine must have:

- Received the baccalaureate degree;
- Completed three years of a curriculum qualifying him or her to receive the baccalaureate degree after completing the first year in medicine; or
- Completed three years of a baccalaureate program meeting the general graduation requirements of the college he or she is attending.

Prospective students must have earned at least 94 semester hours of credit, or the equivalent, including:

- 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: as a minimum, a complete introductory course in organic chemistry, ordinarily following a complete introductory course in modern general chemical principles;
- Biological sciences: a complete introductory course in the principles of general biology, and on the role of medicine. This course should include lecture and laboratory.
Candidates must have sufficient use of the senses of vision and hearing and the somatic sensation necessary to perform a physical examination.

Candidates must be able to perform palpation, auscultation, and percussion.

Candidates must be able to relate responsibility to patients and establish sensitive, professional relationships with patients.

Candidates are expected to be able to communicate the results of the examination to the patient 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 precision, quick, and appropriate action in emergency situations.

Candidates are expected to be able to accept criticism and respond to appropriate modification of behavior.

Candidates are expected to possess the perseverance, diligence, and consistency to complete the medical school curriculum and enter the independent practice of medicine.

Applicants who may not meet these standards are encouraged to contact the coordinator of admissions.

Fulfillment of the specific requirements for admission does not ensure admission to the College of Medicine. From the 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, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. Because the quality of work in premedical science is basic to success in medicine, the admissions committee gives special attention to grades in science and to the level of difficulty of the program undertaken. Where courses are available on a graded or pass-fail basis, it is expected that applicants will take the required science courses on a graded basis.

Preference is given to applicants with high scholastic standing who are residents of Iowa. Outstanding nonresidents are considered exclusively under the Early Decision Plan. Under this plan, the prospective student submits a single application to the schools of his or her first choice by August 1 of the year preceding the one for which the applicant is seeking admission. The decision is made by October 1. The Early Decision Plan is waived for applicants to the Medical Student Training Program and the Educational Opportunities Program.

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 Examination Service.

Personal interviews are not usually conducted but are occasionally requested by the admissions committee. Applicants who feel that an interview is necessary may request that one be arranged by contacting the coordinator of admissions. Requests for interviews normally should be made before January 1. The specific purpose of the interview should be clearly stated.

Applicants accepted on or prior to February 15 must submit a $100 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 after enrollment.

All students entering the College of Medicine are required to comply with the pre-enrollment and physical examination program developed by the Student Health Service in cooperation with The University of Iowa Hospital and Clinics.

Promotion Policies and Procedures

Role of the 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 adequate skills, knowledge, and judgment 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 administration.

Composition of Promotions Committee

The promotions committee consists of six members and the associate dean for medical student affairs ex officio (without vote). There are five faculty members, one of whom is designated by the dean to serve as chair. Two are from two basic science departments, and three are from three 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 appoints the student member after consulting with the msa 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 course(s) in each grading period. Continued enrollment of a student who has not successfully completed courses in a preceding grading period may be recommended by the promotions committee, provided that an appeals process is utilized for that student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in courses is based on such examinations or other tests as are 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 skills, problem-solving, mental, communication, and interpersonal skills and insists that all students adhere to the general principles of medical ethics. These criteria are described in detail in the Handbook for New Students that medical students receive upon matriculation.

Scholastic performance in the first three years is represented by the letter grades; and in the fourth year, by the letter grades and the grade point average. The letter grades and grade point average are determined by the student's performance on all courses attempted during the grading period.

Promotion committees meet 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 the course directors the records of all students who have received a grade of F or I during the previous grading period. The committee also reviews the records of any student presented by the course director or the associate dean for medical student affairs as doing continuously poor academic work, or failing to demonstrate in any way the eleven skills or abilities described above, or not meeting the medical ethics standards.

The committee considers other business or
procedures as deemed necessary to perform its duties as set forth in this charge.

The promotions committee recommends specific actions to be taken in the case of any student whose skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. These recommendations will be forwarded for action to the medical council 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 repeat all or any part of the curriculum; or allowing the student to continue either a regular or accelerated schedule. Students having unremediated grades of failure will be placed on academic probation. A grade of Incomplete, if not remediated in the time and manner specified to the promotion committee's recommendation, becomes a grade of failure. Students who are in a probationary status may be considered for dismissal should further academic difficulties arise.

The promotions committee presents all recommendations for the weighing of the degree, Doctor of Medicine, to a joint meeting of the medical council and executive committee, which act on the recommendations for the faculty.

Relationship to Course Directors Committees

The course directors committees will provide advice and counsel for students and will be a resource for and provide advice to the promotions committee.

Appeals

Students desiring to appeal promotion decisions must submit an appeal in writing to the dean of the College of Medicine within two weeks after the date of written receipt of the decision and shall be 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. Applications for leave of absence should be requested from the associate dean for medical student affairs. It will be granted at the discretion of the dean.

All leaves must be arranged in advance of the student's absence. If a student requests at any time that a leave begin during a clinical clerkship or clinical elective, the student also must obtain permission from the course director.

Any unexcused absence from a major section of a basic science course or a clinical clerkship may result, at the discretion of the department, in a grade of F.

Withdrawal

A student may withdraw from the College of Medicine upon approval of a written application submitted to the office of the associate dean for medical student affairs.

Reinstatement

Application for reinstatement by any student who has withdrawn voluntarily or who has been expelled must be made in writing to the office of the dean of the college. The student must be readmitted in writing to the office of the dean of the college at least four months prior to the requested date of readmission.

The faculty is authorized to refuse to reinstate or further registration to any student, if it believes that he or she has not lived up to the expected personal fitness 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 discretion as to the best way to resolve the problem. The medical school has a formal procedure as stated in "Promotion Policies and Procedures" and an informal procedure as outlined below.

In the College of Medicine, students with problems or complaints should first attempt to resolve the issue with the faculty member with whom there is a problem. Lacking a satisfactory outcome, the student then should turn to the department chair or head. If the student is not satisfied with the obtained, the student may discuss the complaint informally with the director of medical student affairs of the College of Medicine. This informal procedure would not be materially involved in the involver of the office of the dean in an official capacity. Should these procedures 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 parties in resolving the conflict and does not involve the student's permanent record that are part of the formal procedures. This informal procedure is intended for any situation a student may encounter, including grading disputes, alleged academic dishonesty, alleged dishonesty during clinical rotation (e.g., falsifying patient data), and perconic discrimination or harassment.

When a student is resolving a complaint with a faculty member or department, others should try to avoid impugning the conclusions based on rumors and bits of information. In the interest of the student's confidentiality, full details of the incident will almost never be released to the medical student body.

Students are encouraged to make full use of the counseling services available from the dean's office or through Student Health Services. These cover the full range of academic, personal, financial, or marital difficulties and are handled informally without going into the student's record, unless it involves an official action (e.g., taking a year off or rescinding an exam).

Associated Medical Sciences

The Division of Associated Medical Sciences is organized to include the programs for medical technologists, nuclear medicine technologists, physical therapists, and physician assistants. Admission to these professional programs follows the selection described in the respective sections of this Catalog.

Unclassified Students

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 study and upon the student's compliance with all the regular requirements for admission to such a course, or by action of the faculty upon recommendation of the professor in charge of the course.

Nondepartmental Courses

501 Medical Ethics Fourth Year am.
502 Medical Ethics Third Year am.
503 Human Aspects 2 s.h.
504 Physical Aspects 2 s.h.
505 Medical Ethics in the Humanities 1 s.h.
506 Basic Aspects of Clinical Practice 1 s.h.
507 Psychiatric Aspects of Clinical Practice 1 s.h.
508 Advanced Aspects of Clinical Practice 1 s.h.
509 Medical Ethics in the Humanities 2 s.h.
510 Medical Ethics in the Humanities 2 s.h.
511 Medical Ethics in the Humanities 2 s.h.
512 Medical Ethics in the Humanities 2 s.h.
513 Medical Ethics in the Humanities 2 s.h.
514 Medical Ethics in the Humanities 2 s.h.
515 Medical Ethics in the Humanities 2 s.h.
516 Medical Ethics in the Humanities 2 s.h.
517 Medical Ethics in the Humanities 2 s.h.
518 Medical Ethics in the Humanities 2 s.h.
519 Medical Ethics in the Humanities 2 s.h.
520 Medical Ethics in the Humanities 2 s.h.
521 Medical Ethics in the Humanities 2 s.h.
522 Medical Ethics in the Humanities 2 s.h.
523 Medical Ethics in the Humanities 2 s.h.
524 Medical Ethics in the Humanities 2 s.h.
525 Medical Ethics in the Humanities 2 s.h.
526 Medical Ethics in the Humanities 2 s.h.
527 Medical Ethics in the Humanities 2 s.h.
528 Medical Ethics in the Humanities 2 s.h.
529 Medical Ethics in the Humanities 2 s.h.
530 Medical Ethics in the Humanities 2 s.h.
531 Medical Ethics in the Humanities 2 s.h.
532 Medical Ethics in the Humanities 2 s.h.
533 Medical Ethics in the Humanities 2 s.h.
534 Medical Ethics in the Humanities 2 s.h.
535 Medical Ethics in the Humanities 2 s.h.
536 Medical Ethics in the Humanities 2 s.h.
537 Medical Ethics in the Humanities 2 s.h.
538 Medical Ethics in the Humanities 2 s.h.
539 Medical Ethics in the Humanities 2 s.h.
540 Medical Ethics in the Humanities 2 s.h.
541 Medical Ethics in the Humanities 2 s.h.
542 Medical Ethics in the Humanities 2 s.h.
543 Medical Ethics in the Humanities 2 s.h.
544 Medical Ethics in the Humanities 2 s.h.
545 Medical Ethics in the Humanities 2 s.h.
546 Medical Ethics in the Humanities 2 s.h.
547 Medical Ethics in the Humanities 2 s.h.
548 Medical Ethics in the Humanities 2 s.h.
549 Medical Ethics in the Humanities 2 s.h.
550 Medical Ethics in the Humanities 2 s.h.
Anatomy

Anatomy: Joe C. Coulier


Associate Professors: Kenneth R. Bhatia, John J. Miller, Michael J. Bunnell, Alexander Sanders, James W. West

Assistant Professors: Martin D. Cassot, James C. Smith, Raymond Thompson, Michael J. Bunnell, Alexander Sanders, James W. West

Degrees offered: B.S., M.D.

The department provides three major programs for the health care professions: provides advanced courses, including course work, and research training to graduate students preparing for careers in academic research and related fields and conducts original research into biological structure and function.

Preclinical Study for the Health Care Professions

The department contributes to the preclinical education of health care professionals by providing major courses in gross anatomy, histology, and neuroanatomy. The department participates in the Medical Student Training Program, the Cellular and Molecular Biology Training Program, and the newly established Neuroscience Program.

Graduate Programs

Master of Science

Admission to the M.S. program is limited to individuals who hold or are currently registered for a health professional degree. M.D. students who are established in the health sciences and have demonstrated interest in research programs may be admitted to the Ph.D. program.

Doctor of Philosophy

Students in the Ph.D. program work directly for the doctorate without an intermediate master's program. They acquire in-depth knowledge of a select area of basic biology, embryology, and neuroscience by taking research courses and courses in teaching and laboratory sections under faculty supervision. Students ordinarily require four to five years of full-time study to complete the doctorate in anatomy. During the first year the student receives training in gross anatomy and histology, and orientation to the research laboratory. By the end of the first year the student chooses a thesis advisor and a Faculty member who acts as the major advisor. By the end of the second year the student must undergo the comprehensive examination. The comprehensive examination is the student's ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. Subsequent years are devoted primarily to research.

Financial Aid

Financial aid is awarded on a competitive basis to students admitted to the Ph.D. program. Financial aid also should be completed concurrently with the student's major advisor at least four other faculty members.

Admission

An applicant for admission to the Ph.D. program in anatomy should have a bachelor's degree in college mathematics, one year of organic chemistry, one year of physics, one year of biology, and upper level courses in biology. For graduate students, the "Graduate Program in Anatomy" is the only program in biology to the Graduate Record Examinations (GRE) Advanced Test. Applicants to the Ph.D. program in anatomy are strongly encouraged to take the GRE Advanced Test in Biology or their major undergraduate area.

Facilities

The department occupies over 35,000 square feet in the Bowen Science Building on the University's main campus. The department utilizes the University's modern house program and well-equipped research laboratories. The modern instrumentation is available, including the following: research microscopes, electron microscopes, Balzers evaporator systems, spectrophotometers, microtomes, tissue culture and protein chemistry facilities, and automated gamma and beta counting systems. Through collaborative programs
Division of Associated Medical Sciences

Head: Rita Montgomery

The Division of Associated Medical Sciences provides coordination of professional programs that presently include medical technologists, nuclear medicine technologists, physical therapists, and respiratory therapists. Flexible and well-planned undergraduate programs prepare students for entry into these professional areas. The student usually enters one of these programs in the College of Liberal Arts and is assigned a faculty adviser from the division.

Although each program in the division has its own admission requirements, the first two years of undergraduate study are similar. Each program requires a foundation in biology, chemistry, mathematics, physics, computer science, and psychology. These courses are required by some programs and are highly recommended for others. The student should plan his or her study program carefully so that conflicts in specifically required courses do not occur. It is imperative that the student consult with the appropriate program adviser to assure the proper sequencing of courses.

This is a typical curriculum for undergraduate students, with options being exercised after consultation with program advisers. Programs are abbreviated as follows: MT—Medical Technology; NMT—Nuclear Medicine Technology; PA—Physician Assistant; PT—Physical Therapy.

Nuclear Medicine Technology, PA—Physician Assistant, PT—Physical Therapy

Freshman Year

First Semester

101.1 Rhetoric
Foreign civilization and culture
Physical education skills
4 units
3 units
2 units

Second Semester

102.1 Rhetoric
Historical Perspectives
Drug education
Principles of Chemistry I
6 units
3 units
2 units

Sophomore Year

First Semester

Principles of Chemistry II
Principles of Anatomy
6 units
5 units

Second Semester

4 units
Principles of Anatomy Lab I
1 unit
Total
16 units

Senior Year

General education, elective, or advanced courses in the department of psychology, microbiology, chemistry, biology, or others specified for specific degree requirements.

A student who has satisfactorily completed the prerequisites has satisfied the minimum academic requirements for admission to the physical therapy program in the senior year.

Medical Technology

Director: Maria Schreibauer
Medical director: James A. Garota
Associate professor: James A. Garota
Lecturer: Marin Schreibauer
Assistant professor: Larry Sireta, Rhonine Hyatt, James O’Connor
Assistant in training: Kathleen Kelly, Lucy Wall

Adjunct instructor: John Ablad
Adjunct associate: Thomas Pense
Adjunct assistant: David Deckart, Linda Duggan, Jim Freeland, Pat Hammond, Diane Hestian, Jerry Hudson, Pat Kralik, John Lucas, Melvin Looman, Martin Truemller, Ron Meyer, Geri Schwaner, Karen Tice

Degrees offered: B.S.

Medical technologists perform the laboratory tasks on which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and government laboratories; clinical, physicians’ offices; and industrial, pharmaceutical, biological, and medical research laboratories. Medical technologists are highly skilled health team members who utilize a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

The Medical Technology Program is sponsored cooperatively by the College of Medicine, the College of Liberal Arts, the University of Iowa Hospitals and Clinics, and the Iowa City Veterans Administration Medical Center. Satisfactory completion of this program qualifies the student to take all medical technologist certification examinations.
Admission
The professional program is limited to 30 students who begin the program in late May. Applications close October 31. Fifteen students continue during the fall and spring semesters and complete the program in May. The other fifteen have the opportunity to complete unbriefed preregister 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.

To apply for admission to the professional program, the student must be able to complete all of the following prerequisites and University graduation requirements by the end of the postbaccalaureate (clinical) year.

Sixteen semester hours of chemistry, including qualitative analysis, quantitative analysis, organic chemistry, and biochemistry.

Sixteen semester hours of mathematics, including a course in statistics and

Sixteen semester hours of biology, including general zoology, microbiology, physiology, and parasitology.

Admission is on a competitive basis. Minimum cumulative grade-point average of 2.5 overall and 2.5 in science courses are required. An applicant who satisfies the minimum criteria and successfully completes the summer preprofessional program is given first consideration for admission. The University of Iowa Hospitals and Clinics and the Iowa City Veterans Administration Medical Center, and attends additional lectures.

The program comprises the following courses:

69.120 Microbiology for Medical Technologists
69.121 Immunology for Medical Technologists
69.122 Clinical Chemistry for Medical Technologists
69.123 Immunohematology for Medical Technologists
69.124 Clinical Hematology for Medical Technologists
69.125 Microbiology for Medical Technologists
69.126 Clinical Chemistry for Medical Technologists
69.127 Clinical Immunohematology for Medical Technologists
69.128 Clinical Microbiology for Medical Technologists
69.129 Clinical Hematology for Medical Technologists
69.131 Clinical Laboratory Science Seminar
69.132 Paraphernalia for Medical Technologists

For course descriptions, see "Pathology" in this section of the Catalog.

Diagnostic, therapeutic, and research purposes. It is a vigorous, dynamic 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 detectors and computers to trace the movement and localization of radioactive tracers in the human body.

Other basic job responsibilities may include: radiation safety; quality control; radiopharmaceutical preparation and administration; and 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, health physicists, radiopharmacists, and radiocardiologists as an integral part of a highly trained specialty 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 AHA Accreditation Board involves 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 Iowa Veterans Administration Medical Center.

Upon satisfactory completion of the four-year program, the student receives the Bachelor of Science degree and a certificate of registration from the College of Medicine. The graduate is then eligible for national certification as a nuclear medicine technologist.

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 advised to pursue a course of study that is applicable to a baccalaureate degree, most commonly in biology, chemistry, biochemistry, or microbiology. This way, students who are not admitted to the NMT program can complete a degree in their chosen area.

Junior Year
Recommended courses:
961 Elementary Human Anatomy
72123 General Pathology
22C7 Introduction to Computing with FORTRAN
Senior Year

The curriculum of this clinical year is organized in accordance with the "Essentials of an Accredited Educational Program in Nuclear Medicine Technology." Courses are taught in the following areas: radiopharmacy, radiobiology, radiobiology and tracer techniques, radioummunotherapy, radioummunotherapy laboratory procedures, radiation protection, patient care, medical terminology, atomic and physiological bases of nuclear medicine procedures, physics and instrumentation, administration and management, mathematics and statistics of nuclear medicine, and computer applications in nuclear medicine. Clinical rotations focus on nuclear imaging, clinical radiopharmacy, computer applications and quantification of radionuclides in vivo and in vitro, including kinetic studies. Rotations also are established in radioummunotherapy, diagnostic X-ray, computed tomography, magnetic resonance imaging, and ultrasound.

The clinical year consists of three courses:
- 74.101 Principles of Nuclear Medicine 6 s.h.
- 74.102 Introductory Clinical Nuclear Medicine 6 s.h.
- 74.103 Principles of Nuclear Medicine II 3 s.h.
- 74.104 Intermediate Clinical Nuclear Medicine 9 s.h.
- 74.105 Advanced Clinical Nuclear Medicine 6 s.h.

For course descriptions, see "Radiology" in this section of the Catalog.

Admission

Requirements for early admission to the nuclear medicine technology program include:
- A minimum of 60 semester hours in all course work, with a minimum cumulative grade-point average of 2.5;
- Fulfillment of the College of Liberal Arts General Education Requirements in rhetoric, physical education, humanities, historical perspectives, foreign civilization, culture, and social sciences (sociology and psychology are recommended).

A minimum of 10 semester hours in three science areas, including a complete introductory course in laboratory chemistry, physics, and zoology.

A minimum of 3 semester hours in mathematics, including at least intermediate algebra.

Fulfillment of these basic admission requirements does not ensure acceptance into the nuclear medicine technology program. Promotion from the junior year to the final clinical year is conditional upon satisfactory completion of a minimum of 94 semester hours of study in the recommended areas.

A core class begins in late August each year. Application materials must be received by March 1. Personal interviews are scheduled in April and the class is selected by May 1. All present, the class size is limited to eight students. Because prerequisites are becoming increasingly important, prospective students are encouraged to apply early and consult with the program office to plan an appropriate preprofessional program.

Financial Aid

Students in the nuclear medicine technology program are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work in the Department of Radiology also is available on a limited basis.

Physical Therapy

Director: Gary Soderberg

Professors: Gary Soderberg, Gary Soderberg

Associate professor: David Nelson

Assistant professor: Curt Kudlits

Lecturers: John Bert, Byron Berks, Thomas Cook

Adjunct assistant professor: William Dautel

Adjunct instructors: Steven Butler, Jane Harris

Adjunct associates: Rhonda Bar, Jan Ollt

Karen Kirschman, Karen Linder, Ken Lee, Lorena Loaf, John Waddworth

Counselor: Frank Henschel

Degree offered: Certificate in physical therapy, M.A.

Physical therapists participate in evaluation of the capabilities and disabilities of patients. They administer treatment to alleviate pain, correct or minimize deformity, and improve the general health status of the individual; and they teach the patient, the patient's family, or other personnel the appropriate procedures for the patient's continuing care. They are also involved in the administration of physical therapy facilities, the supervision of supportive personnel, and consultation with other health professionals.

Physical therapy offers a wide variety of opportunities for professional practice in general or specialized hospitals, in programs for disabled children, and in physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, and athletic departments. Additional career opportunities are available for teaching in educational programs of physical therapy and related professions.

Education in the program is available at three different levels: the basic professional (certificate), the Master of Arts, and more advanced training obtained by completing the Ph.D. in physical education with special emphasis on physical therapy. There are 60 students in the basic professional program and approximately 17 full- and part-time students in advanced degree programs. The facilities are excellent and well-equipped for classroom and laboratory instruction. The Physical Therapy Program is located in the College of Medicine on the health center campus, which includes The University of Iowa Hospitals and Clinics, the nation's largest university-owned teaching hospital. The location makes several resources readily accessible to the Physical Therapy Program: basic science and medical faculty, basic science courses, and intangible benefits associated with a College of Medicine environment.

Program Professional

The professional program in physical therapy at The University of Iowa is fully accredited by the American Physical Therapy Association. Satisfactory completion of the professional program qualifies candidates for the Physical Examination Service (P.E.S.) test for licensure in Iowa and other states.

The two-year professional certification program consists of:
- First Semester
  - 60.100 Human Anatomy 4 s.h.
  - 100.160 Fundamentals of Physical Therapy 3 s.h.
  - 100.115 Kinesiology 3 s.h.
  - 100.121 Therapeutic Physical Agents I 3 s.h.
  - 100.141 Introduction to Physical Therapy 2 s.h.
  - 60.201 Introduction to Human Pathology 1 s.h.
- Second Semester
  - 60.100 Human Anatomy and Neuroanatomy 4 s.h.
  - 100.151 Therapeutic Exercise I 2 s.h.
  - 100.161 Clinical Observation Laboratory 1 s.h.
  - 100.101 Introduction to Clinical Medicine I 3 s.h.
  - 100.122 Emotional Aspects of Disability 1 s.h.
  - 100.142 Physical Agents II 2 s.h.
  - 100.160 Fundamentals of Cardiorespiratory Therapeutics 4 s.h.
  - 100.149 Scientific Inquiry I 1 s.h.
Third Semester
101:112 Fundamentals of Personal & Family Health 3 s.h.
101:113 Therapeutic Exercise II 4 s.h.
101:115 Principles of Nutrition and Disease Prevention 1 s.h.
101:195 Clinical Problem Solving Models 2 s.h.
101:196 Pediatric Physical Therapy 2 s.h.
101:191 Psychological Aspects of Health 1 s.h.
101:202 Cardiovascular & Orthotics 1 s.h.
101:210 Clinical Internship 15 s.h.

Fourth Semester
101:191 Psychological Aspects of Health 1 s.h.
101:202 Cardiovascular & Orthotics 1 s.h.
101:210 Clinical Internship 15 s.h.

Admission
A new class is admitted to the professional certification program each fall. Students may enter the program following their junior year of college or after earning a baccalaureate degree. A student entering the program after the third year of undergraduate study must be able to satisfy all requirements for the baccalaureate degree by successfully completing the first year of the professional certification program. Undergraduate students who complete their preprofessional work at other colleges or universities must meet the general admission requirements of The University of Iowa College of Liberal Arts. They should consult with the director of the Physical Therapy Program to plan their preprofessional studies to meet the requirements of the Physical Therapy Program. Regardless of academic preparation prior to admission, all students are enrolled in the same year for the professional curriculum leading to certification in physical therapy. To be considered for admission, the applicant must have completed at least 54 semester hours of college study, including one introductory course and one advanced course in zoology or botany (12 semester hours); zoology preferred; a complete introductory course in chemistry (8 semester hours), a complete introductory course in physics (8 semester hours); a complete introductory course in psychology (8 semester hours), a general human systems physiology course, one college-level mathematics course (3 semester hours), and statistics (3-4 semester hours). The student must have completed all courses listed in the major departments offering the courses, and all must include at least one-fourth laboratory instruction. The applicant must have a minimum overall grade-point average of 2.7, and should have a 3.0 minimum in all courses in zoology or biology, chemistry, physics, and psychology. All applicants must take the Graduate Record Examination (GRE) Aptitude Test prior to admission. Results of the examination must be mailed to The University of Iowa.

Students are selected based on their performance in the preprofessional and professional programs. The physical therapy admissions committee selects the applicants who appear to be best qualified for the study and practice of the profession. Applications are accepted beginning September 1 for the following year. Prospective students are urged to apply as early as possible. The closing date is February 1.

Expenses
In addition to general University expenses, students in the Physical Therapy Program are responsible for purchase of uniforms, malpractice insurance, and course syllabi.

Graduate Programs
Master of Arts
The Master of Arts in physical therapy emphasizes research and teaching in those areas of physical therapy: musculoskeletal, neuromuscular, and cardiopulmonary. The program focuses on theoretical and clinical applications for assessment and treatment of patient disorders in the three specialty areas. Clinical practicum experiences are offered to complement these specialties. The master's degree requires a minimum of 30 hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

Physical therapy laboratories are available for human and animal studies. These laboratories are well equipped with electromechanical systems and computers for measurement and analysis of musculoskeletal function (muscle strength and endurance, gait, posture, and disability evaluation), neuromotor activity (electromyography, spinal reflexes, CNS control mechanisms), and cardiopulmonary responses (heart rate, blood pressure, energy cost, and ventilation). Use of experimental equipment laboratories also may be arranged. Collaborative studies are encouraged with other departments, such as neurology, internal medicine, pediatrics, orthopedic surgery, physiology and biophysics, chemistry, engineering, and pharmacology, and with personnel in the physical therapy clinics.

A student successfully completing the M.A. program in physical therapy will 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 fundamental clinical practices. Be able to engage in teaching at the undergraduate and postbaccalaureate level.

Graduate programs at the University of Iowa are based on the advanced master's level. The student must have knowledge of the physical therapy theoretical and research literature related to a specific topic; be skilled in the application of basic concepts in the areas of cardiopulmonary, musculoskeletal, and neuromuscular physical therapy.

Required courses:

101:214 Biomedical Instrumentation 3 s.h.
101:291 Thesis Physical Therapy 3 s.h.
101:316 Analysis of Scientific Literature 2 s.h.
63:182 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
101:213 Principles of Human Motion 3 s.h.
101:275 Evaluation of Selected Neuromuscular Disorders 3 s.h.
101:260 Cardiopulmonary 3 s.h.
101:290, 292, or 294 Practicum (Teaching, Research and/or ***Clinical) 3 s.h.

Maximum of six semester hours.

**May be taken on a pass-fail basis.

**7W:120 Introduction to Instructional Design and Technology 3 s.h.
69:203 Introduction to Human Factors 3 s.h.
101:335 Independent Study 3 s.h.
101:295 Electromyography in Kinesiology and Biomechanics 3 s.h.
101:327 Research in Therapeutics 2 s.h.
21:353 Advanced Anatomy and Physiology 2 s.h.
27:141 Exercise Physiology 3 s.h.
71:120 Drugs: Their Nature, Action, and Uses 2 s.h.
7W:262 Facilitating Learning's Health Science Education 3 s.h.

Admission
To be considered for admission, the applicant must be a graduate of an approved professional program or physical therapy and must have earned a grade-point average of 2.7 or higher (on a 4.0 scale) on all undergraduate work. Two years of clinical experience also is considered highly desirable.

Admission to the master's degree program is based on the student's grade-point average for previous college academic work, scores on the Graduate Record Examination (GRE) Aptitude Test, recommendations from three sources, and a personal interview. The applicant must also meet the requirements established by the Graduate College.
Financial Aid
A number of teaching and research assistantships are available; part-time clinical work may also be available.

Courses
The courses listed below are open only to students in the professional program.

110-00 Fundamentals of Physical Therapy 2 a.h.
Rationale and utilization of physical therapy methods and techniques in the treatment of musculoskeletal and neuromuscular disorders.

110-06 Therapeutic Exercise I 2 a.h.
Describe normal movement and rehabilitation. Application of principles, methods, and techniques to diagnosis and therapy of musculoskeletal dysfunction in clinical settings.

110-10 Clinical Education and Rehabilitation 2 a.h.
Prepares students for the clinical education and rehabilitation of the patient with musculoskeletal disorders.

111-00 Introduction to Clinical Medicine I 2 a.h.
Lectures, demonstrations, and case presentations of medical disorders from the standpoint of pathology, clinical signs and symptoms, treatment, and prognosis.

111-10 Principles of Neuroradiology and Clinical Science 2 a.h.
Lectures, demonstrations, and case presentations of orthopedic disorders from the standpoint of orthopedic principles, clinical signs and symptoms, treatment, and prognosis.

111-15 Therapeutic Exercise II 2 a.h.
Lectures, demonstrations, and case presentations of principles and techniques of therapeutic methods relative to muscle and bone.

111-20 Principles of Neuroradiology and Clinical Science 2 a.h.
Lectures, demonstrations, and case presentations of neurologic disorders treated by therapy. Same as 111-00.

113-10 Kinesiology 1.5 a.h.
Study of motion, mechanical, structural, and functional movement of human body, muscle, and systems. Clinical, static, and dynamic systems, mechanical, neuro-muscular, and neuromuscular influences on normal and pathological movement, technique, analysis, and stability of mechanical relation of muscles to body or mechanical function of body.

116-10 Clinical Observation 1 a.h.
Practice of physical therapy procedures in hospital rehabilitation departments under supervision of director and staff therapists.

118-10 Clinical Internship 1 a.h.
Clinical experience in a hospital setting in the observation and practice of physical therapy methods. Six weeks at full time.

119-10 Physical Therapy Management and Administration I 1 a.h.
Lectures and discussions relative to principles of management in physical therapy practice.

120-10 Clinical Aspects of Disability 1 a.h.
Emotional problems related to physical disability and programs of rehabilitation.

121-10 Therapeutic Physical Agents I 1 a.h.
Therapeutic physical agents in the management of various neurological and muscular disabilities.

122-14 Introduction to Physical Therapy 1 a.h.
An introduction to physical therapy and the application of physical therapy to other allied health professions; professional ethics and liability of the individual in the profession.

124-10 Scientific Inquiry I 1 a.h.
Study of the scientific method as applied to problems in physical therapy; student defines problem, collects data, interprets findings, and analyzes existing literature.

125-10 Scientific Inquiry II 1 a.h.
Continuation of Scientific Inquiry.

126-00 Fundamentals of Cardiopulmonary Therapy 4 a.h.
Review of cardiopulmonary anatomy and physiology with emphasis on applications to physical therapy management of patients with acute and chronic diseases.

127-10 Preventive and Orthotic 1 a.h.
Principles and techniques in the design and use of preventive and orthotic appliances.

128-10 Biostatistics II 1 a.h.
Basic concepts in biostatistics and application of these concepts to physical therapy research and practice.

129-10 Advanced Surgical Therapy 1 a.h.
Current status of research for biological and mechanical adaptation and psychosocial psychological problems in muscle, musculoskeletal, and cardiopulmonary surgery of physical therapy. Offered on an as needed basis.

129-20 Basic Physiotherapy 2 a.h.

courses are available.

129-20 Cardiopulmonary Therapy 1 a.h.
Principles of cardiopulmonary therapy, with emphasis on clinical application and study of cardiopulmonary physiology.

130-10 Evolution of Health Services 1 a.h.
An examination of the evolution of health services, including the development and evolution of medical, dental, and other health services.

130-10 Respiratory Therapy 1 a.h.

courses are available.

130-10 Respiratory Therapy 1 a.h.

courses are available.

130-10 Respiratory Therapy 1 a.h.

courses are available.

130-10 Respiratory Therapy 1 a.h.

courses are available.

130-10 Respiratory Therapy 1 a.h.

courses are available.

130-10 Respiratory Therapy 1 a.h.

courses are available.

130-10 Respiratory Therapy 1 a.h.

courses are available.

130-10 Respiratory Therapy 1 a.h.

courses are available.

130-10 Respiratory Therapy 1 a.h.

courses are available.
Physician Assistant Program

Director: Denis Oliver
Assistant: Douglas L. Ladd
Associate professors: Douglas L. Ladd, Denis Oliver
Associate: Patrick M. McAfee
Assistant: Jonathan Luey
Degree offered: R.S.

The physician assistant is qualified by general educational training, experience, and personal character to provide patient services under the responsible supervision of a licensed physician. The physician assistant serves in a variety of ways and provides a wide range of medical services. In a typical office setting he or she is frequently the first to see the patient, take the initial history, do an appropriate physical examination, and order necessary laboratory or X-ray studies. For many common problems the physician assistant may formulate and initiate a treatment plan. The patient may or may not see the physician, depending on the severity of the problem. The physician is consulted frequently and reviews each patient’s chart in a timely manner.

As an extension of the physician, the physician assistant makes hospital rounds, house calls, and visits to nursing homes. He or she reviews the patient’s progress, modifies the treatment plan if necessary, and performs many other health care functions. He or she provides counseling to patients about their illness, family planning, availability of social services, well-baby care, and other aspects of health care maintenance.

The Physician Assistant Program at the University of Iowa is accredited by the American Medical Association Committee on Allied Health Education and Accreditation. The program is approved by the Iowa Board of Medical Examiners and is a member of the Association of Physician Assistant Programs. Completion of the program qualifies students for the Bachelor of Science degree and for the opportunity to take the National Certifying Examination for Primary Care Physician Assistants. Successful completion of the certifying examination is a prerequisite for registration as a physician assistant in Iowa.

The Physician Assistant Program at the University of Iowa emphasizes the practice of general medicine in settings designed to develop leadership and health care teams. Extensive clinical training is provided in affiliated hospitals and office-based practices in a range of primary care medical specialties, including pediatrics, internal medicine, and pediatrics. Additional rotations in medical and surgical specialties and sub-specialties are available and qualify the graduate for employment in many health care areas.

Professional Program

The Physician Assistant Program is an integral part of the College of Medicine. The first year of the program is taken at the College of Medicine. A major portion of the second year’s clinical work occurs throughout the state in primary care settings.

The second year educational program is divided into three broad phases. The initial, didactic phase consists of seven months of course work in a number of basic science areas, including anatomy, biochemistry, clinical pathology, microbiology, pharmacology and physiology and biophysics. Whenever appropriate, related subjects are integrated to provide sequential lecture and laboratory experience. A seminar course specifically directed to the history, development, and future of the physician assistant profession is also offered during this session.

The second phase is 50-121 Introduction to Clinical Medicine for Physician Assistant Students. This full semester course involves the application of basic science knowledge to the understanding of clinical-pathologic correlations of the common and catastrophic disorders encountered in the major disciplines of medicine. The student also is instructed in the science and art of obtaining a medical history and performing a thorough physical examination. This course is taken with similarly-situated medical students.

The third, clinical phase consists of supervised rotations of four to six weeks duration in a number of primary care subspecialties. These clinical rotations are designed to provide the student with instruction and experience in the care of patients in a manner that facilitates effective integration of the knowledge, skills, and attitudes derived from the basic and pre-clinical phases of the program. Clinical training is provided by the University of Iowa Hospitals and Clinics, the Veterans Administration Medical Centers in Des Moines and Iowa City, Broadlawns Medical Center in Des Moines, and other affiliated hospitals throughout the state. Students gain additional clinical experience through placement with selected preceptors involved in clinical work in office-based practices.

The didactic and clinical phases of the program emphasize primary health care delivery and the use of physician assistants as members of the health care team. The program is integrated with the needs of the College of Medicine, permitting interdisciplinary experiences between various medical and health care professional students.

Professional Curriculum

First Year

<table>
<thead>
<tr>
<th>Phase</th>
<th>Major Course(s)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>71:135 Pharmacology for Health Sciences</td>
<td>3 h.s.</td>
</tr>
<tr>
<td></td>
<td>71:175 Pathology for Health Sciences</td>
<td>3 h.s.</td>
</tr>
<tr>
<td></td>
<td>71:176 Microbiology for Health Sciences</td>
<td>3 h.s.</td>
</tr>
<tr>
<td></td>
<td>71:178 Biostatistics</td>
<td>3 h.s.</td>
</tr>
<tr>
<td></td>
<td>69:120 Introduction to Human Pathology</td>
<td>4 h.s.</td>
</tr>
<tr>
<td></td>
<td>69:130 Clinical Pathology</td>
<td>4 h.s.</td>
</tr>
<tr>
<td></td>
<td>72:164 Human Physiology for Physician Assistant Students</td>
<td>4 h.s.</td>
</tr>
<tr>
<td></td>
<td>99:164 Biochemistry for Physician Assistant Students</td>
<td>3 h.s.</td>
</tr>
<tr>
<td></td>
<td>117:101 Seminar for Physician Assistant Students</td>
<td>2 h.s.</td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Phase</th>
<th>Minor Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase II</td>
<td>70:555 Pediatrics for Physician Assistant Students</td>
<td>5 h.s.</td>
</tr>
<tr>
<td></td>
<td>75:555 General Surgery for Physician Assistant Students</td>
<td>6 h.s.</td>
</tr>
<tr>
<td></td>
<td>78:555 Internal Medicine for Physician Assistant Students</td>
<td>6 h.s.</td>
</tr>
<tr>
<td></td>
<td>110:555 Family Practice I for Physician Assistant Students</td>
<td>6 h.s.</td>
</tr>
<tr>
<td></td>
<td>110:556 Family Practice II for Physician Assistant Students</td>
<td>6 h.s.</td>
</tr>
<tr>
<td></td>
<td>60:160 Radiology and Gastroenterology for Physician Assistant Students</td>
<td>6 h.s.</td>
</tr>
<tr>
<td></td>
<td>73:190 Psychiatry for Physician Assistant Students</td>
<td>6 h.s.</td>
</tr>
<tr>
<td></td>
<td>62:540 Dermatological Elective for Physician Assistant Students</td>
<td>2 h.s.</td>
</tr>
<tr>
<td></td>
<td>64:110 Radiology Elective for Physician Assistant Students</td>
<td>2 h.s.</td>
</tr>
<tr>
<td></td>
<td>75:110 Surgery Elective for Physician Assistant Students</td>
<td>2 h.s.</td>
</tr>
<tr>
<td></td>
<td>75:190 Pediatrics Elective for Physician Assistant Students</td>
<td>2 h.s.</td>
</tr>
<tr>
<td></td>
<td>75:110 Pediatrics Elective for Physician Assistant Students</td>
<td>2 h.s.</td>
</tr>
<tr>
<td></td>
<td>75:110 Pediatrics Elective (Cardiology) for Physician Assistant Students</td>
<td>2 h.s.</td>
</tr>
<tr>
<td></td>
<td>79:120 Urology Elective for Physician Assistant Students</td>
<td>2 h.s.</td>
</tr>
</tbody>
</table>
Admission

To be eligible for admission to the Physician Assistant Program, the applicant must have completed at least 60 semester hours of college level study including:

- College of Liberal Arts General Education Requirements in rhetoric, physical education skills, historical perspectives, humanities, qualitative or formal reasoning, foreign civilization and culture, and social sciences.

Complete introductory courses in inorganic and organic chemistry; and

A complete introductory course and at least one advanced course in zoology or animal biology.

It is also strongly recommended, although not required, that the applicant's background include analytical geometry, beginning calculus, and physics.

The applicant must have achieved at least a 2.5 grade-point average on the last 60 semester hours of college coursework undertaken. The admissions committee gives special attention to the applicant's performance in science courses. In the past, the successful applicant has had a cumulative and science grade-point average of 3.1, a total of 125 semester hours of college credits at which 55 semester hours were in the sciences, and approximately 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 admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience in any form may or may not be selected.

Students are advised to pursue a course of study that is applicable to a baccalaureate degree, most commonly in the areas of biology, chemistry, or microbiology. In this way, students who are not admitted to the Physician Assistant Program can pursue the baccalaureate.

Each new class begins the last week in May. Application is accepted beginning one year in advance, and close January 15. 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 uniforms and diagnostic equipment, approximately $350. Microscopes are not required.

Courses

- 117:010 Cooperative Education Pre-Physician Assistant Training Assignment 6 s.h.
- 117:101 Physician Assistant Clinical Second Year 3 s.h.
- 117:201 Cooperative Education Pre-Physician Assistant Assignment 1 s.h.
- 117:202 Introduction to Selected Health Professions 2 s.h.

Biochemistry

A listing of the courses offered may be obtained from the University Physician Assistant Program.

Research Interests

Research Interests in the Department of Chemistry at the University of Illinois at Chicago are in the areas of organic and medicinal chemistry, including the synthesis and evaluation of potential drugs.

Research facilities include a variety of instruments for the study of molecular properties, including mass spectrometry, nuclear magnetic resonance, and infrared spectroscopy. The department is equipped with modern instrumentation, and students have access to the extensive research facilities of the University of Illinois at Chicago.

Graduate Programs

The Department of Chemistry offers graduate programs in chemistry, biochemistry, and materials science. These programs are designed to prepare students for careers in academia, industry, or government agencies.

Research facilities include a state-of-the-art laboratory for the study of organic and inorganic chemistry, as well as a well-equipped lab for the study of biological systems. The department is also equipped with modern instrumentation for the study of molecular properties, including mass spectrometry, nuclear magnetic resonance, and infrared spectroscopy.

The University of Illinois at Chicago is located in the heart of the city, with easy access to a variety of cultural and recreational activities.
Family Practice

Acting head: Charles E. Dykstra
Professor: Ian M. Smith, Internal Medicine
Assistant professors: David E. Lant, Ophthalmology; A. Scott
Associate professors: Elizabeth A. Warren, Family
Clinical instructors: Marsha L. Parker, David M. Rosenthal, Gloria D. Williams, Paul R. Williams.
Assistant professor: A. Timothy Appenzeller, Harold T. Woodard, John D. Byers, David C. Woodhead (Pediatrics)
Clinical instructor: Patricia Howard
Adjunct assistant professors: Ronald D. Hilliard

The Family Practice Program was initiated in response to the need for more primary-care physicians in Iowa and throughout the nation.

Appropriate course work in the department is included throughout the four-year M.D. program. The department's 19 elective senior rotation gives students opportunities for exposure to various Iowa communities through work in affiliated hospitals or connected facilities, in the department's model office on the University campus, and in preceptorships with selected family practice physicians throughout the state. There is also ample opportunity for independent study during the junior, senior, and an international health care elective offers exposure to primary health care systems of other countries.

Residency

The department directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Practice. This residency trains physicians to provide continuing and comprehensive care to the total family, utilizing a concept integrating the patient, allied health professionals, and the physician into an efficient and effective health care delivery system.

The program is flexible, allowing each resident freedom to tailor his or her training to individual interests and needs. It includes a broad spectrum of electives in internal medicine, pediatrics, obstetrics and gynecology, psychiatry, medical and surgical specialties, and community medicine. The program features 52 individual rotations.

The hospital-based clinical experience is a unique combination of exposure to practice...
Graduate Programs

Master of Arts

The master's degree in hospital and health administration requires two years of full-time study. The curriculum is designed to develop the knowledge, attitudes, and skills needed to function in responsible managerial positions in hospitals, long-term care institutions, ambulatory care facilities, public agencies, consulting firms, and other health-related organizations.

During the first year, students are exposed to the social, political, economic, and financial aspects of hospitals and health care organizations. The concepts, tools, and techniques of effective managerial decision making, planning, and control are introduced.

In the second year, students learn management concepts and techniques in areas related to their own special interests and career objectives.

The program of study utilizes an interdisciplinary approach requiring a minimum of 54 semester hours of graduate work. Required courses, representing a core of disciplines and areas of knowledge, are carefully sequenced to establish a coherent approach to learning.

These courses are as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>80:101</td>
<td>Introduction to Health Care Organization</td>
<td>3</td>
</tr>
<tr>
<td>80:205</td>
<td>Health Services Administration I</td>
<td>3</td>
</tr>
<tr>
<td>80:206</td>
<td>Health Services Administration II</td>
<td>3</td>
</tr>
<tr>
<td>80:207</td>
<td>Health Services Administration III</td>
<td>3</td>
</tr>
<tr>
<td>80:208</td>
<td>Health Services Administration IV</td>
<td>3</td>
</tr>
<tr>
<td>80:209</td>
<td>Issues in Health Management and Policy</td>
<td>3</td>
</tr>
<tr>
<td>80:210</td>
<td>Accounting in Health Administration</td>
<td>3</td>
</tr>
<tr>
<td>80:211</td>
<td>Health Economics I</td>
<td>3</td>
</tr>
<tr>
<td>80:212</td>
<td>Financial Management of Health Institutions I</td>
<td>3</td>
</tr>
<tr>
<td>80:213</td>
<td>Quantitative Methods in Health Administration I</td>
<td>3</td>
</tr>
<tr>
<td>80:223</td>
<td>Quantitative Methods in Health Administration II</td>
<td>3</td>
</tr>
</tbody>
</table>

Joint Programs

Students who wish to pursue an integrated program leading to a graduate degree in hospital and health administration and a graduate degree in another field are encouraged to do so. Joint programs usually require three years of full-time study, and students must satisfy the requirements of each program in order to earn both degrees. Joint programs currently are offered with the College of Business Administration (M.B.A.) and the Department of Urban and Regional Planning (M.A.). Other alternatives may be established on an individual basis.

Students interested in a joint program should discuss their plans with both academic units and indicate their interest when submitting application materials.
Felinshipships and Residencies

Most students choose to complement their academic training with an administrative fellowship or residency prior to accepting their first permanent position. Such experiences afford a valuable asset of observing, developing, and demonstrating practical management skills. The fellowship takes an active role in assisting experienced students to identify and secure fellowship and residency positions.

Doctor of Philosophy

The Iowa Graduate Program in Hospital and Health Administration is the nation’s first doctoral program in hospital and health administration. The Ph.D. requires completion of a minimum of 90 graduate semester hours, comprehensive examinations, and a dissertation. Doctoral candidates present dissertations based on original research that tests, accepts, or applies concepts or principles to or in the field of health care management. The program requires that doctoral candidates develop expertise in three areas of study. These areas and required courses are:

Health Services Management and Policy

- 40:251 Medical Care Programs
- 40:210 Seminar: Health Systems Management
- 40:210 Seminar in Contemporary Health Issues
- 40:256 Seminar in Contemporary Health Issues II

Research Methodology

- 40:261 Health Services Research I
- 40:262 Health Services Research II
- 40:263 Independent Research Project

Advanced Statistical Techniques

- 79:245 Intermediate Statistical Methods
- 79:246 Correlation and Regression
- 79:246 Design of Experiments
- 80:208 Application of Multivariate Statistical Methods

Econometrics

- 4E:103 Statistical Methods in Econometrics
- 4E:223 Econometrics I
- 80:205 Application of Multivariate Statistical Methods

Elective

Sociology

- 34:18 Elementary Statistics and Data Analysis
- 42:102 Intermediate Statistics and Data Analysis
- 80:205 Application of Multivariate Statistical Methods

Minor

The student must complete at least 12 semester hours in a discipline such as sociology, political science, psychology, management sciences, or economics.

Center for Health Services Research

The Center for Health Services Research (CHSR), the research division of the Graduate Program in Hospital and Health Administration since 1965, is an interdisciplinary unit at The University of Iowa for research on health and health care. With the coordination and support of the CHSR, faculty and staff from colleges and departments throughout the University investigate the organization, delivery, efficacy, and financing of health care services. CHSR interests embrace a broad spectrum of perspectives and disciplines, including economics, geography, organizational behavior, psychology, operations research, sociology, government medicine and environmental and clinical medicine. Through its research activities the center promotes links among health organizations throughout the Midwest. CHSR also serves frequent exchanges with practitioners and provider associations, policy and planning groups, insurance organizations, health delivery institutions, the State of Iowa, and other members of the health services research community.

Master’s and doctoral students from the program are encouraged to become involved in the center’s projects and activities.

Veterans Administration Health Services Research and Development Field Program

Program faculty and students also are active in research activities at the Veterans Administration Health Services Research and Development Field Program.

Courses

- 40:201 Introduction to Health Care Organization
- 40:202 Administration of Health Services in the United States: Analysis of social, political, psychological, and economic factors that affect health services
- 40:203 Administration of mental health services
- 40:204 Administration of hospital services
- 40:205 Administration of health services

Alumni Association

As active Alumni Associations supports the program in a number of important ways, including consultation and fund development. Of particular interest to students is the association’s function as a network for new entrants into the profession. Students are encouraged to develop relationships with alumni who serve as adjunct lecturers, guest speakers, and as preceptors for residencies and fellowships.

Each fall the program sponsors the Executive Symposium, an invitational session for several hundred health care executives featuring presentations by leaders in the health care field. During the event, student participants have the opportunity to meet and speak with practitioners from across the nation.

Admission

Applicants to the master’s program are required to hold a baccalaureate degree (except for early admission program applicants). A 2.0 grade point average on a four-point scale is desirable. Combined GRE verbal and quantitative scores above 1000 are preferred. Prerequisites include one course in accounting and one in mathematics. Courses in business economics, and statistics are strongly recommended. Campus visits are encouraged and personal interviews usually are required prior to admission.

Applicants to the Ph.D. program generally are expected to hold a master’s degree in a health-related field. Although other degrees will be considered, all applicants are required to submit academic transcripts, GRE scores, letters of reference, and a written statement of interest in the program. Admissions are made for the fall semester only.

Financial Aid

The program attempts to provide financial aid to all students who apply. Accordingly, a number of part-time research assistantships that provide a stipend and in-state tuition rates for out-of-state students are awarded each semester. Questions regarding financial aid should be directed to both the program and the Office of Student Financial Aid.
Admission
The Ph.D. program in human nutrition attracts students with a wide range of interests and training. Prerequisites for admission to the program include completion of acceptable courses in college-level mathematics through calculus, organic chemistry, and physics; a minimum undergraduate grade-point average of 3.0; and a 3.0 average in science and mathematics courses; and an acceptable score on verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) Aptitude Test.

Individuals interested in further details of the program should consult the director. Formal application requires submission of all college-level grade transcripts, a letter expressing career goals, and letters of reference familiar with the applicant's academic record.

Facilities
Students accepted into the program can participate in a wide range of nutrition research activities conducted in a number of departments: anatomy, biochemistry, home economics, internal medicine, obstetrics and gynecology, pharmacology, pediatrics, pediatric dietetics, physiology, and biophysics. Preventive medicine and environmental health, and surgery.

Financial Aid
Financial support is available to all students in the program.

Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>65:281 Nutrition Seminar</td>
<td></td>
<td>3 h</td>
</tr>
<tr>
<td>65:282 Nutrition Seminar</td>
<td></td>
<td>3 h</td>
</tr>
<tr>
<td>65:283 Nutrition Seminar</td>
<td></td>
<td>3 h</td>
</tr>
<tr>
<td>65:284 Clinical Nutrition</td>
<td></td>
<td>3 h</td>
</tr>
<tr>
<td>65:285 Projects in Nutrition</td>
<td></td>
<td>3 h</td>
</tr>
<tr>
<td>65:286 Nutrition Research</td>
<td></td>
<td>3 h</td>
</tr>
<tr>
<td>65:287 Nutrition Research</td>
<td></td>
<td>3 h</td>
</tr>
</tbody>
</table>

Internal Medicine

Hands: Francis A. Neidhart
Professor: Margaret A. Abbeard, M.A.
Associate: Robert F. Abbeard, Robert S. Rac
George N. Wolfe, C. Patrick Brown, James
Chesterman, Robert A. Clark, James A. Olsson
Richard D. Gaffney, Gerald Dobson, John W.
Waldron, Armand Fitte, Donald Blythe, Kenneth A.
Abel, Gary W. Hyman, George R. K. S. Gaffney, John A.
Knie, Richard E. Knebel, Michael L. Marcus, Allen J.
Mac, Hai R. Brehm, Harold P. Schmitt, Charles G.
Groll, Ian M. Smith, Raymond Spear, John R.
Stoltenberg, Robert W. Strehlow, Ernest S. Thieren,
Walter W. Wernert, Donald C. Zande

Professor emeriti: William B. Bean, Richard D.
Fiedler, Robert C. Hefley, Lewis B. Janca, Paul
Streelmann, William M. O'Keefe

Associate professors: John Beals, Donald Blythe, Richard B.
Derrico, William P. Duce, Jeffrey Odell, David C.
Fink, Daniel T. Ford, Gary E. Hymes, Roger C.
Dorostkar, Barry R. Glinzberg, Nancy S. Gottes, Charles R.
Hoffa, Jaymee C. Hambleton, Michael M. J., Michael
Kohn, Douglas R. Laube, William L. Larson, Victoria L. Lee, Donald E. Mcdonough
John H. Mackie, James B. Marton, Richard R.
Mamantov, Konrad T. Schulz, David M. Skraba, David J. Skurton, James V. Smith, M. P.
Steinbrunn, John M. Weaver, Kent W. Wroblewski
Michael J. Weiss, Andrew Yin

Assistant professors: John Anderson, William C.
Bertiger, John A. Berghaus, Thomas R.
Cawiezel, Jeffrey L. Culliton, John L. Cowley,
Robert R. Felder, Roger D. Feldman, Robert R. Fink,
David G. Hakanson, Michael R. J., Lawrence F.
Kernah, Robert W. Kerr, Michael G. Kertzien,
Louis V. Kniwd, Stephen S. McCroskey, Pope L.
Mansky, Michael J. Muffly, Stanley J. Murphy,
William J. Neusner, Charles B. Peace, A. John A.
Phelps, Michael J. Plunkett, Steven J. Roberts, Mary R.
Schechter, Larry J. Schreiber, Louis Vercraus, Robert D.
Wilkens

Instructors: Michael W. Petersen, Jack T.
Stapley, Mary S. Wilcoxen

Associate professors: Sheldon L. Bonezian, David A.
Teachman, Richard L. Smith, Lyle K. Crossrand,
Michel J. Ferrigan, Eileen R. Gerton, Joel A.
Gerton, Darrel C. Green, David D. Guttermann,
Robert J. Hegeman, Richard A. Hetzler, Frederick
A. Jenkins, Joseph Kang, James E. Rameau, Stuart
A. Shaw, Thomas T. Tobesn, Bryan Vanderveen,
Joseph D. Vlahos

Clinical associate professors: Oscar C. Bere, Martin
C. Bichard, John P. Coghlan, David A. Delgga,
Josephson, Udoeb Ethob, Karl Eimer, Edith Laron,
Edward Nett, Thomas R. Netman

William C. Bonnier, C. E. Schrader, Susan
Sullivan, Louis C. S. Stadler, Stephen J. Stucki,
Richard B. Yarbrough, Charles W. Yount, Eric A. Zern
Clinical assistant professors: Tantaka
Steinmetz, Dale D. Andrus, John Bailey, Robert
Nakos, Walter W. Rahn, Bryan A. Teachman, Thomas
A. Brown, Michael Caudle, James Dohl, David Cant, Paul
Hoffa, Robert J. O'Keefe, William R. Pott, Jeanette P. Ruff,
Richard G. Straughn, Samuel S. Klement, David Lenox,
John Rife, Hai Truong, James Proctor, Edward
Peaser, George Rivey, Craig Stadler, Joseph
Thomason, John A. B. Uhde, Donal De Vincenzo,
Yividi Wismor

Clinical instructors: Robert R. Collins, Philip J. Dazinger, James C. Elman, Ralph M.
Kontrowitz, Robert C. Landerer, Jack M. Lackner,
Lauryn Sp. Logi, Kenneth R. Newman, Edward
Thomason, John G. White, Edward R. Wing, Thomas L.
Zubring

The Department of Internal Medicine is concerned with the diagnosis, prevention, and treatment of diseases of adults. The educational, patient-care, and research activities of the department cover all facets of internal medicine, including general internal medicine and primary care as well as the specialized areas of allergy-immunology, cardiology, clinical pharmacology, oncology, endocrinology, pulmonary medicine, gastroenterology, hematology, infectious diseases, renal and pulmonary medicine, and rheumatology.

The department is organized into divisions: A, B, and C, with the appointment of a senior member of the department to serve as the chief of each division. Members of the department bear a major share of the teaching of residents and fellows, and in the introduction to Clinical Medicine, in which students begin their medical education. In addition to the medical knowledge, skills, symptoms, complications, prevention, and treatment of disease, students are taught to obtain history, perform physical examination, and apply the principles of diagnostic and treatment. In the third year students are assigned for six weeks to medical services at The University of Iowa Hospitals and Clinics.

In the fourth year students may select a clinical exposure in any of the divisions of the department.

Graduate Program

The department offers a masters degree in an approved residency program of high quality. In addition, most of the department's residency programs offer a masters degree in the period of two to three years. These permit

Graduate Program

The department offers a masters degree in an approved residency program of high quality. In addition, most of the department's residency programs offer a masters degree in the period of two to three years. These permit
Medical Scientist Training Program

Director: Robert E. Fellows (Physiology and Biophysics)
Associate Director: William Johnson (Microbiology)
Associate director for clinical studies: Albert A. Bachrach

The Iowa Medical Scientist Training Program is designed to prepare highly qualified individuals for careers in academic medicine with emphasis on preclinical and clinical research. To accomplish this, the program provides a research-efficient integration of graduate education and doctoral-year psychiatry with the full complement of clinical studies necessary for the medical degree. With few exceptions, the requirements for the combined M.D. and Ph.D. degrees can be completed within seven years of continuous study.

In the first two years of the program the trainees are enrolled in the College of Medicine for the basic science and introductory clinical portions of that curriculum. In the first three semesters the basic science component consists of a broad exposure to both the laboratory and organizing concepts of the preclinical sciences, which form the foundation essential for all subsequent medical training. In the first semester trainees take courses in biochemistry, microbiology, anatomy, gross anatomy, and histobiology. In the second semester they take physiology, microbiology, immunology, and general pathology. The first semester of year two is devoted to the study of pharmacology, systemic pathology, and community health sciences. During the summer months between the first and second years trainees engage in biomedical research under the direction of a faculty sponsor.

In the second semester of the second year trainees are enrolled in the Introduction to Clinical Medicine sequence that initiates the development of attitudes, knowledge, and skills necessary for building and maintaining competence as a physician. This semester provides instruction and practice in history taking, physical diagnosis, and laboratory diagnosis, as well as insight into major health problems and their prevention. The introduction to Clinical Medicine sequence is followed in the summer of the second year by 12 weeks of clinical clerkships in internal medicine and pediatrics.

In years three, four, and five—should necessary, exit—trainees are enrolled full time in the graduate department who they have selected by January of the second year. During this time trainees are provided with academic and research experience necessary to fulfill Graduate College requirements for the Ph.D. degree and appropriate to their development as independent investigators. This scientific training is supervised directly by the faculty of the graduate department. During this phase of training the clinical context is emphasized through a formal weekly program of clinical research conferences under the guidance of the associate director for clinical studies and through voluntary participation in other clinical activities.

As soon as trainees complete the graduate component of their training, they return to the College of Medicine to begin a final year of clinical training. This year serves two important purposes. First, it allows the trainee to take back into the clinical environment a considerable body of knowledge and skill acquired in laboratory and clinical science and apply it to problems of human disease. Second, it permits the trainees to review and develop further the clinical skills acquired in the second year of the program. After completing 36 weeks of clinical clerkships, trainees receive the M.D. and Ph.D. degrees.

Financial Aid
Trainees admitted to the first year of the program compete for stipend and tuition aid provided by a Medical Scientist Training Program grant to the University of Iowa from the National Institutes of Health (NIH) Support from this grant and institutional sources is continued for up to six years, provided the trainee's achievement and progress remain satisfactory. NIH stipends are supplemenfered during the graduate phase of the program. Trainees admitted without NIH awards are eligible for equivalent exponential training awards beginning at the end of the second year of the program and continuing for four years. Support for trainees admitted in advanced standing in the program is arranged on an individual basis.

Admission
Applicants must meet requirements for admission to the College of Medicine and the Graduate College at The University of Iowa. Trainees are expected to have completed requirements for a bachelor's degree at an accredited academic institution. In addition to outstanding academic credentials, including strength in biological, physical, and mathematical sciences, applicants should demonstrate aptitude for and commitment to scientific research, usually through productive research experience as undergraduates. Applications are accepted from students requesting admission to the first year of the program and from students already enrolled in programs for admission to advanced standing from individuals currently enrolled in the College of Medicine or Graduate College 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 AMCAS application to forward their credentials to the College of Medicine. Applications will be reviewed as early as possible but after June 15. At the same time, applicants should request a separate Medical Scientific Training Program application from the Program Office, 1-460 Iowa Science Building, The University of Iowa, Iowa City, Iowa 52242. 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. All applications must be submitted as early as possible to facilitate review by both the College of Medicine and the Program Selection Committee. The early decision plan for the Medical Scientist Training Program is available to U.S. residents if waived by this program. Equal consideration is given to all applicants regardless of their state of residence.
Medical Technology
See "Division of Associated Medical Sciences" in this section of the Catalog

Microbiology
Head: Irving F. Pomerat
Program Directors: Robert F. Auver (Internal Medicine), John E. Butler, John Ouyang, Jr., Irving F. Pomerat, Michael C. Price, Thomas R. Realini (Virology), Rudolph P. Galab (Ornithology and Genetics), Louis G. Hoffman, William J. Wink, David J. Laurer (Pathology), Richard C. Lynch (Pathology), John A. Markowitz, Erich N. So, Donald F. Stoby, Mark F. Subtil, C. Martin Sutterlin
Associate professors: Steven Grag, Charles J. Cox, Charles Cramer (Pediatrics), John J. Ouyang, Jr., Gerald J. Vinters, George V. Vitters, Donald N. Waker
Assistant professors: Morris D. Oster, Stephen C. Sutterlin
Degrees offered: B.S., M.S., Ph.D.

Undergraduate Program
See "Microbiology" in the "College of Liberal Arts" section of the Catalog

Graduate Programs
The objectives of the graduate programs in microbiology are to help students become highly qualified in research and in teaching of microbiology.

Severe areas are included in the program: biochemistry, pathogenic bacteriology, microbial genetics, immunology, microbial physiology, physical mycology, and animal virology. Several of these specialized areas involve interdisciplinary training within and outside the department, so students receive broad experience during their course study. Students working for the Ph.D. degree must obtain an M.S. degree during their graduate work, or proceed directly toward the Ph.D. degree.

All students admitted as candidates for the Ph.D. degree are expected to assist in departmental teaching.

Incoming students choose a research advisor who serves as chair of the student's advisory committee. This committee assists the student in planning a program of study and reviews, from time to time, the student's progress in research. The department cooperates with other departments in the various colleges on campus, allowing ample opportunity for students to avail themselves of diverse course offerings, seminars, and research programs. For example, courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, and electron microscopy are taught on an interdepartmental basis.

Master of Science
Candidates for the M.S. degree are required to take a minimum of 12 semester hours of microbiology courses in three of the seven different subdisciplines available in microbiology. Students may substitute a course taken in other departments (The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements or selections will depend on the interests of the student and the advice of the examining committee. A thesis based on the student's own research is required. The thesis must be defended satisfactorily in an oral examination.

Doctor of Philosophy
The minimum course requirements for the Ph.D. are one course in each of four subdisciplines (all of the seven subdisciplines available in microbiology) or 15 semester hours of coursework 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. A student also must pass a comprehensive examination and write a thesis based on his or her research. The thesis must be defended satisfactorily in an oral examination.

Facilities
The department shares the Blouin Science Building with the departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and equipment requirements are available for teaching and research.

Admission
Prospective graduate students should communicate with the department to receive admission requirements of the Graduate College. Departmental requirements include a review and interview by the faculty before a student is admitted. Before beginning graduate work, the student must have completed courses in biology, chemistry (inorganic and organic), mathematics (calculus), and physics. Students admitted without the above coursework must take during the first year of graduate study. The student should have a grade-point average of 2.7 or better to be admitted to the graduate program in microbiology.

Certain specified curricula, such as the Microbiology Training Program, are intended for advanced students who have admission standards higher than those described above. Only applicants with a grade-point average of 3.5 or higher are considered for these programs, and it is preferable for the applicant to have completed several years of post-baccalaureate training before applying. The course of study leading to the Ph.D. in microbiology with emphasis in biotechnology also may differ somewhat from that of the other subdisciplines. Inquiries may be made to the program or department chair.

Courses
6100 Cooperative Education Internship 0-3 b.
6102 Medical Microbiology 3 b.
The course is required of all students in the division of medical microbiology covering general principles of microbial taxonomy, physiology, and ecology. Specimens are collected and are detailed study of the division of Medical Microbiology, external to the division. The course may be repeated as necessary.
6120 Clinical Microbiology 3 b.
The course is required of all students in the division of medical microbiology covering general principles of microbial taxonomy, physiology, and ecology. Specimens are collected and are detailed study of the division of Medical Microbiology, external to the division. The course may be repeated as necessary.
6140 Courses in Laboratory Medicine 3 b.
A course is required of all students in the division of medical microbiology covering general principles of microbial taxonomy, physiology, and ecology. Specimens are collected and are detailed study of the division of Medical Microbiology, external to the division. The course may be repeated as necessary.
6157 General Microbiology 3 b.
The course is required of all students in the division of medical microbiology covering general principles of microbial taxonomy, physiology, and ecology. Specimens are collected and are detailed study of the division of Medical Microbiology, external to the division. The course may be repeated as necessary.
Neurology

Neurological disorders are a major cause of disability worldwide. Problems include: traumatic brain injury, Alzheimer’s disease, stroke, Parkinson’s disease, multiple sclerosis, and spinal cord injury. Treatment options include medication, surgery, and rehabilitation. Early diagnosis and intervention are crucial for optimal outcomes.

Courses

6131 Clinical Neurology

6126 Electroencephalography

6128 Epilepsy and Seizure Disorders

6130 Functional Neurosurgery

6132 Neurosurgical Oncology

6133 Neurosurgical Critical Care

6134 Neurosurgical Trauma

6135 Neurosurgical Interventions

6136 Neurosurgical Anesthesia

6137 Neurosurgical Genetics

6138 Neurosurgical Rehabilitation

6139 Neurosurgical Imaging

6140 Neurosurgical Pathology

6141 Neurosurgical Epidemiology

6142 Neurosurgical Ethics

6143 Neurosurgical Practice Management

6144 Neurosurgical Quality Improvement

6145 Neurosurgical Research

6146 Neurosurgical Education

6147 Neurosurgical Leadership

6148 Neurosurgical Policy

6149 Neurosurgical Advocacy

6150 Neurosurgical Administration

6151 Neurosurgical Surgery

6152 Neurosurgical Surgery Fellowship

6153 Neurosurgical Surgery Research

6154 Neurosurgical Surgery Education

6155 Neurosurgical Surgery Quality Improvement

6156 Neurosurgical Surgery Epidemiology

6157 Neurosurgical Surgery Economics

6158 Neurosurgical Surgery Ethics

6159 Neurosurgical Surgery Practice Management

6160 Neurosurgical Surgery Research

6161 Neurosurgical Surgery Education

6162 Neurosurgical Surgery Quality Improvement

6163 Neurosurgical Surgery Epidemiology

6164 Neurosurgical Surgery Economics

6165 Neurosurgical Surgery Ethics

6166 Neurosurgical Surgery Practice Management

6167 Neurosurgical Surgery Research

6168 Neurosurgical Surgery Education

6169 Neurosurgical Surgery Quality Improvement

6170 Neurosurgical Surgery Epidemiology

6171 Neurosurgical Surgery Economics

6172 Neurosurgical Surgery Ethics

6173 Neurosurgical Surgery Practice Management

6174 Neurosurgical Surgery Research

6175 Neurosurgical Surgery Education

6176 Neurosurgical Surgery Quality Improvement

6177 Neurosurgical Surgery Epidemiology

6178 Neurosurgical Surgery Economics

6179 Neurosurgical Surgery Ethics

6180 Neurosurgical Surgery Practice Management

6181 Neurosurgical Surgery Research

6182 Neurosurgical Surgery Education

6183 Neurosurgical Surgery Quality Improvement

6184 Neurosurgical Surgery Epidemiology

6185 Neurosurgical Surgery Economics

6186 Neurosurgical Surgery Ethics

6187 Neurosurgical Surgery Practice Management

6188 Neurosurgical Surgery Research

6189 Neurosurgical Surgery Education

6190 Neurosurgical Surgery Quality Improvement

6191 Neurosurgical Surgery Epidemiology

6192 Neurosurgical Surgery Economics

6193 Neurosurgical Surgery Ethics

6194 Neurosurgical Surgery Practice Management

6195 Neurosurgical Surgery Research

6196 Neurosurgical Surgery Education

6197 Neurosurgical Surgery Quality Improvement

6198 Neurosurgical Surgery Epidemiology

6199 Neurosurgical Surgery Economics

6200 Neurosurgical Surgery Ethics
Requirements

Background Courses

Students are expected to complete at least 3 semester hours in each of the following fields in the undergraduate curriculum: biology, cell biology, and biochemistry.

All students are required to have completed a combination of courses in the following areas:

1. Microbiology
2. Organic Chemistry
3. Inorganic Chemistry
4. General Chemistry
5. General Physics

In addition, students must have completed courses in the following areas:

1. Biochemistry
2. Cell Biology
3. Genetics
4. Molecular Biology
5. Developmental Biology

Elective Courses

All students in the Neuroscience Program are required to take three or more advanced elective courses, for a total of at least 6 semester hours. These electives are selected from an approved list of courses offered by the departments of anatomy, biology, chemistry, physiology, and psychology. Furthermore, students must select courses in at least three different of these five areas, representing their area of specialization, and at least one course in a related subfield.

Financial Aid

Graduate students in the Neuroscience Ph.D. Program receive tuition support from institutional and extramural sources, including the National Institutes of Health.

Facilities

Training is conducted primarily in the laboratories and teaching facilities of the departments of anatomy, biology, chemistry, physiology, and psychology, and in the clinical departments of neurology and psychiatry. Faculty laboratory and clinical research facilities are available to students in those departments, including a cellular neuropharmacology training grant from the National Institutes of Health.
Programs

Clinical Program

Trainees enter this program directly from medical school through the National Internship Matching Plan. The program consists of a one-year categorical diversified orthopaedic internship and four years in orthopaedic residency.

During the internship year the trainee gains experience not only in clinical orthopaedics but also in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesia, and other services.

During the following years residents gain experience in trauma, children’s orthopaedics, adult orthopaedics, neuromuscular disorders, rehabilitation, prosthodontics and orthotics, rheumatology, and basic science as related to orthopaedics. The residents will specialize in anatomic, bone biology, biochemistry, physiology, and pathology.

A weekly seminar covers biomechanics, kinesiology, and selected clinical patients.

Academic Orthopaedic Program

This program includes the training described under the clinical program above. In addition, the resident devotes one or two years to research. This research may be in any field in which the resident is interested, provided it is related to the musculoskeletal system, may be done in one of the orthopaedic laboratories or in a basic science department.

Laboratories

The orthopaedic laboratories deal with problems in these major subject areas:

Biochemistry—The biochemistry of mononuclear synoviocytes and collagen, both normal and those altered in epiphyseal dysplasia and scoliosis

Biomechanics—In conjunction with the College of Engineering, biomechanical problems of the upper extremity, biomechanics of the spine, hip, and joint, and total joint replacements.

Cell biology and pathology—Ultrastructural studies on normal bones, cartilage, tendons, and muscles, and on those altered by experiment and disease.


Facilities

The department is housed in the Caner Pavilion of The University of Iowa Hospitals and Clinics and has an active service in the Veterans Administration Medical Center.

Facilities include 75 beds, an outpatient clinic, an outpatient operating area, a specialty library, a specialty orthopaedics unit, and physical therapy facilities. Physicians in the outpatient clinic see approximately 125 patients per day.

Specialty clinics deal with such problems as arthrocentesis, club feet, congenital dislocated hips, neuromuscular disease, metabolic disease, neck, back, amputation, hips, knees, hands, metacarpals, and trauma.

Approximately 1,500 major operations are performed each year under auspices of the department.

The department provides consulting service to University Hospital School, Regional Child Health Specialty Clinics, and two state schools for the mentally retarded.

Courses

102 Clinical Orthopaedics

103 Orthopaedic Elective for Physicians Assistant Students

105-106 Exsplanatory Electives For Physicians Assistant Students

110 Advanced Clinical Orthopaedics

120 Musculoskeletal Trauma

121 Surgical Care of the Head

Speckled Studies on Cancer

200 Special Studies on Cancer

300 Special Studies on Cancer

Otolaryngology—Head and Neck Surgery

Head: Brian F. McCabe

Associate professors: J. William Barish, Albert S. Weiner, David M. Vered, Richard S. Tyler

Research assistants: Howard Z. Martin, Peter L. Alt

Clinical faculty: Thomas J. Breslaw, Carl E. H. Hauert, Guy W. McFarland

Clinical assistant professor: Peter L. Alt

Department of Otolaryngology.

The department provides one of the oldest and most active otolaryngology—head and neck surgery residency programs in the world. Currently it has a full-time faculty of 13, including several members from plastic surgery, audiology, speech pathology, and dentistry (orthodonotics and prosthodontics).

The department’s main objective is to provide a high-level instructional program in otolaryngology—head and neck surgery for medical students and residents. To maintain a teaching program, the department’s faculty and staff carry a large number of head and neck oncology, head and neck plastic reconstructive surgery, facial trauma, craniofacial congenital defects (such as cleft lip and palate), neurotology, pediatric and genetic hearing problems, voice problems, laryngologic surgery, for malignancies (including laryngeal implants), and all the areas usually considered otolaryngology.

There are eight divisions in the department that make this program comprehensive: otology and neurotology, plastic and reconstructive surgery of the head and neck, endoscopic surgery of the head and neck, rhinology, pediatric otolaryngology, cranial base, laryngologic surgery, and audiovestibular surgery.

All resident faculty members participate in research and all residents are required, as part of the resident training program, to design, conduct, and report on a research project before the beginning of study. In addition, there are several large-scale research programs within the department in vestibular neurophysiology, cochlear implantation, cranial base and facial reconstruction, microvascular reconstructive surgery, evaluation of the temporal bone, neurotologic audiometry, bone resorption in ear disease, electrophysiology of the inner ear, and psychoacoustics.

Several of these research programs receive federal or private financial support.

Graduate Program

The graduate program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology.

The program consists of a four-year course of basic and clinical science. The basic science lectures and laboratory studies are conducted during the first three and one-half months of residence.

After passing an oral or written examination, the student enters the clinical
Pathology

Head: Richard G. Lynch

Professor Emeritus: Frederick W. Banner

Associate Professor: Carol A. Ashworth

Assistant Professor: Donald T. Gough, Donald L. Mill, Bruce A. Woodin

Adjunct Associate: John Mohl

Adjunct Assistant: Durlin L. Beck

Residency Program

The department is approved for 21 residency positions in pathology, covering a rotation of up to five years. The programs are designed to utilize the patient population of The University of Iowa Hospitals and Clinics and the Iowa City Veteran's Administration Medical Center. There is systematic rotation through the various laboratory services, including surgical pathology, cytopathology, clinical chemistry, medical microbiology, hematology, immunopathology, and transfusion center. Additional opportunities for concentrated study in most pathology subspecialties are available.

The department also offers a postdoctoral training program in clinical biochemistry for biochemists and chemists. This program is approved by the American Board of Clinical Chemistry.

In addition, the department provides five 12-month externships and a variable number of clerkships for pediatric students in any of the areas of anatomic and clinical pathology.

Programs

Clinical Education in Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog

Master of Science

The M.S. program in pathology is open to students with various educational backgrounds. The department particularly encourages applications from students with Bachelor of Science degrees in chemistry, biochemistry, biology, zoology, and medical technology, and trauma students with medical and dental degrees.

The M.S. program is flexible, but the department enforces two tracks, one to provide a research background for academically oriented resident physicians and the other for medical technologists who wish to advance their training, usually by transferring to an area of laboratory medicine.

M.S. students participate in teaching patient care, and research through the instructional programs of the department, the service laboratories of the department and The University of Iowa Hospitals and Clinics, and faculty members' research laboratories.

Admission to the M.S. program requires a 3.0 grade-point average in science courses, a Graduate Record Examination (GRE) Aptitude Test combined verbal and quantitative score above 1200, and a personal interview. A brochure describing departmental course requirements and granting exemptions of the major academic tracks is available on request.

Postdoctoral Training

The Department of Pathology offers a program in hematopathology for physicians who have completed at least two years of residency training in surgery. The postdoctoral traineeship consists of one
Pharmacy

Head: Dr. Michael C. Greg

Assistant Professor: Ross D. Fischer, Mark J. Goldberg

Degree offered: M.S., Ph.D.

The Department of Pharmacy offers a Master of Science degree program in clinical pharmacy and a Doctor of Philosophy degree in pharmaceutical sciences. These programs are designed to provide students with advanced knowledge in the field of pharmacy. The Master of Science degree program is intended to prepare students for careers in various aspects of pharmacy practice, including hospital pharmacy, community pharmacy, and pharmaceutical research. The Doctor of Philosophy degree program is designed to prepare students for careers in research and teaching at the graduate level. The Department of Pharmacy offers a variety of courses in pharmaceutical sciences, including pharmacology, pharmaceutics, and pharmaceutical chemistry. The Department of Pharmacy is accredited by the Accreditation Council for Pharmacy Education (ACPE).
Financial Aid
Full-time doctoral students in physiology and biophysics receive financial aid, with continued support contingent upon satisfactory progress.

Facilities
The Department of Physiology and Biophysics occupies two floors devoted to research and teaching in the Bowes Science Building, and has additional laboratory facilities at the nearby Oaktree campus. In addition to specialized equipment in individual research laboratories, the department provides computers and computer graphics systems, electron and fluorescence microscopes, automatic isotope analyzers, a cell culture facility, and electrophoresis and mass spectrometer facilities. Graduate students are provided with individual study space near the departmental library, which supplements resources available at the Health Sciences Library.

Admission
Applicants for graduate admission must complete undergraduate studies in an accredited institution prior to matriculation with an overall science grade-point average of 3.0 or better, coupled with strong performance on the Graduate Record Examination (GRE) Aptitude Test. The appropriate background for graduate study in physiology is microbiology, but courses in another subject, such as biochemistry, may be undertaken by arrangement. Applicants should have a strong interest in research, and must be able to demonstrate their ability to think critically and independently. Admission to the Graduate School is determined by the Graduate School Committee on Admission.

Courses

72.146 Human Physiology
4 s.h.
Basic concepts of human physiology. Offered fall semester. Prerequisites: 25.1, 4.18, or equivalent, and consent of course director.

72.156 Human Genetics
4 s.h.
Basic concepts of human genetics. Offered spring semester. Prerequisites: 25.1, 4.18, or equivalent, and consent of course director.

72.160 Human Anatomy
4 s.h.
Principles of anatomy with detailed study of organ systems and body cavities. Open to graduate students and upperclassmen. Offered spring semester. Prerequisites: consent of course director.

72.160A Advanced Anatomy
4 s.h.
Principles of anatomy with detailed study of organ systems and body cavities. Open to graduate students and upperclassmen. Offered spring semester. Prerequisites: consent of course director.

72.164 Neuroanatomy
4 s.h.
Microscopic and gross anatomy of the brain, spinal cord, and cranial nerves. Prerequisites: consent of course director.

72.166 Environmental Physiology
4 s.h.
Physiological responses of animals to their environment, including temperature, light, and food sources. Prerequisites: consent of course director.

72.201 Animal Physiology
4 s.h.
Principles of physiology with detailed study of organ systems and body functions. Open only to biochemistry students. Prerequisite: consent of course director.}

Preventive Medicine and Environmental Health

Health: Robert W. Wallace

Research: Cynthia Bory, Wei Fan, Han.

Adjunct professor: John Jorg.

Associate professors: William Hamaker, Jan Lender, Paul Pfeiffer, Helen J. Bolander, Jane Smith, Charles Brooks.

Assistant professors: David C. Moore, Donald J. O'connor, David J. Rundell

Adjunct assistant professor: Roger Tracy

Instructor: William D. Jones.

Adjunct assistant professor: Andrew C. C. Jones.

Adjunct assistant professor: Russel C. C. Jones.

Adjunct instructor: Linda S. Sardella.

Clinical assistant professor: Ira B. Raskin

Research: Ira B. Raskin.

Degree: M.S., M.D.

Preventive medicine relates to the individual patient when knowledge and techniques from biological, medical, social, and behavioral science are applied to promote the health-relatedness of the patient. It relates to the health of the entire community when
the knowledge and skills of medical and allied sciences are applied in an organized, "community effort to maintain and improve the health of the population."

The Departmental research and teaching activities are conducted within the framework of the Division of Biostatistics and Epidemiology, and the Occupational and Environmental Health Sciences. The Division of Biostatistics and Epidemiology provides statistical support to investigators throughout the health center and the College of Medicine. Research and teaching in the Division focus on methods of data collection, analysis, and interpretation.

The Occupational and Environmental Health Sciences Program is concerned with the health problems of occupational workers. The Program offers a Master of Science degree in Occupational Health and a Ph.D. program in Environmental Health. Separate admissions to both academic units are required.


courses

- 400: Introductory Environmental Health
- 450: Environmental Health: Public Health Aspects
- 500: Human Health and the Environment
- 505: Human Health and the Environment: An Ecological Approach
- 520: Environmental Health: An Ecological Approach
- 530: Environmental Health: An Ecological Approach
- 540: Environmental Health: An Ecological Approach
- 550: Environmental Health: An Ecological Approach
- 560: Environmental Health: An Ecological Approach
- 570: Environmental Health: An Ecological Approach
- 580: Environmental Health: An Ecological Approach
- 590: Environmental Health: An Ecological Approach
- 600: Environmental Health: An Ecological Approach
- 610: Environmental Health: An Ecological Approach
- 620: Environmental Health: An Ecological Approach
- 630: Environmental Health: An Ecological Approach
- 640: Environmental Health: An Ecological Approach
- 650: Environmental Health: An Ecological Approach
- 660: Environmental Health: An Ecological Approach
- 670: Environmental Health: An Ecological Approach
- 680: Environmental Health: An Ecological Approach
- 690: Environmental Health: An Ecological Approach
- 700: Environmental Health: An Ecological Approach
- 710: Environmental Health: An Ecological Approach
- 720: Environmental Health: An Ecological Approach
- 730: Environmental Health: An Ecological Approach
- 740: Environmental Health: An Ecological Approach
- 750: Environmental Health: An Ecological Approach
- 760: Environmental Health: An Ecological Approach
- 770: Environmental Health: An Ecological Approach
- 780: Environmental Health: An Ecological Approach
- 790: Environmental Health: An Ecological Approach
- 800: Environmental Health: An Ecological Approach
- 810: Environmental Health: An Ecological Approach
- 820: Environmental Health: An Ecological Approach
- 830: Environmental Health: An Ecological Approach
- 840: Environmental Health: An Ecological Approach
- 850: Environmental Health: An Ecological Approach
- 860: Environmental Health: An Ecological Approach
- 870: Environmental Health: An Ecological Approach
- 880: Environmental Health: An Ecological Approach
- 890: Environmental Health: An Ecological Approach
- 900: Environmental Health: An Ecological Approach
- 910: Environmental Health: An Ecological Approach
- 920: Environmental Health: An Ecological Approach
- 930: Environmental Health: An Ecological Approach
- 940: Environmental Health: An Ecological Approach
- 950: Environmental Health: An Ecological Approach
- 960: Environmental Health: An Ecological Approach
- 970: Environmental Health: An Ecological Approach
- 980: Environmental Health: An Ecological Approach
- 990: Environmental Health: An Ecological Approach

A limited number of research assistantships, traineeships, and tuition grants are available within these departments.

Admission

Application deadlines are July 15 for fall semester. December 1 for spring semester, and May 1 for the summer session. These deadlines apply only to the College of Medicine and to non-University of Iowa students.

Minimum grade-point average requirements are 2.7 for admission to the master's program and 3.0 for the Ph.D. Acceptable completion of the Graduate Record Examination (GRE) Aptitude Test is also required (the acceptable score for most students is a combined verbal and quantitative score of 960). Also, it is required by the University Foreign Admissions Office that, for foreign students, the requirements ofTOEFL Test of English as a Foreign Language (a minimum combined score of 550 is acceptable for non-native by students). The applicant must have an undergraduate major or course background in science or mathematics, depending on his or her proposed program of graduate study. However, in order to be considered for admission to the master's program with emphasis on public health, applicants may have an undergraduate major in the health sciences, with emphasis on public health disciplines.

A joint master's option exists between the Graduate Program in Urban and Regional Planning and Preventive Medicine and the College of Medicine. This option results in an M.A. or M.S. in Planning and an M.S. in Preventive Medicine 2nd Year Environmental Health. Separate admissions to both academic units are required.

Also, applicants are required to specify on the application form the program (track) to which they are applying. Forward three letters of recommendation and submit a short description of why they want the degree and what are their professional goals.
exercises interspersed with operating room experience. Lectures and conferences are scheduled regularly on specific topics. Special courses in selected topics of surgical pathology and problems of severe burns, organ transplantation, surgical control of malnutrition, inflammatory bowel disease, biliary tract disease, pediatric surgery and plastic surgery. The thoracic, vascular and neurological surgeons have particular expertise in clinical management of the spectrum of diseases in their specialties.

Facilities

The department has more than adequate numbers of patients with a wide variety of surgical diseases for teaching. Special areas include the only burn unit in the state, providing adequate patient material for both clinical and basic science research.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. These laboratories include animal surgery, tissue culture, gastroenterology, surgical pathology, diagnostic radiology, surgery, transplantation, organ preservation, cardiovascular surgery, and neurosurgery and oncology.

Courses

751-1 Basic Emergency Skills
Surgical practice: course in emergency medical techniques; emphasis on practical exercises and applications to clinical situations.

752 Vascular Research

754 Surgical Research

758 Emergency Room Director for Physician Assistant Students

7510 Surgery Center for Physician Assistant Students

75010 Advanced Clinical Surgery

75010 Advanced Surgical Endoscopy

75010 Emergency Room Chief for Physician Assistant Students

75010 Surgical Oncology

75010 Surgical Oncology

75010 Emergency Room Chief for Physician Assistant Students

Urology

Head: Richard D. Williams

Department of Urology and Nephrology offers courses in all these fields, at the undergraduate and graduate levels and in continuing education for the delivery of urologic care

The Department of Urology in The University of Iowa College of Medicine offers courses in all these fields, at the undergraduate and graduate levels and in continuing education for the delivery of urologic care.

The Department of Urology participates actively in 50-101 Introduction to Clinical Medicine, which involves the entire second semester of two-year medicine. The department offers elective lecture courses and demonstrations concerning the diagnosis and treatment of diseases involving the genitourinary tract in the male and the urinary tract in the female patient. In the third and fourth years of the curriculum in medicine, the department offers courses in diagnostic urology, radiologic urology, urologic oncology, and the entire field of urology. In the required third-year clerkship, the department offers the basic knowledge of the male, and in the fourth year's offered advanced elective courses of intensive study in these areas. The department offers continuing education throughout the year for urologic and family practice physicians. These courses are conducted by the senior staff, whose interests include pediatric urology, reoperative urology, urologic oncology, urological tract stone, and prostatic diseases.

In the past year, the department has maintained intensive interest in urologic conditions, and the urologic laboratory is active and offers instruction in experimental oncology and cellular immunology.
79:110 Urological Oncology

Clinical experience in diagnosis and management of all types of genitourinary neoplasms. Participation in department's patient oncology program with special emphasis on patient care, consultation, and clinical research. Preparation for terminal examination or solo practice.

79:116 Male Endocrinology and Reproductive Endocrinology

Participation in clinical program in the management of male endocrine disorders. Preclinical and clinical experience in all aspects of male reproductive endocrinology. Preparation for terminal examination.

79:137 Clinical Electrosurgery in Urology

Clinical training in the use of electrosurgical instruments in urological procedures. Preparation for terminal examination or solo practice.

79:123 Urology Elective for Physicians, residents and students

Individual electives arranged with approval of the department.

79:199 Special Studies off Campus

Individual or group project directed toward clinical or research problem. Preparation for terminal examination or solo practice.
College of Nursing

Dean: Geraldine Fison

Dean emeritus: Myra Rydbeck

Assistant dean, undergraduate studies and community affairs: Deborah McCollum

Assistant dean, clinical and graduate studies: Judy Mathis

The program in nursing education includes:

Undergraduate:

Mental Health

Nursing Research Development and Utilization: Thelma Byng

Professors: Edith M. Ayllon, Paula Breck, Elizabeth Beus, Geraldine Fison, Judy Mathis, Rosemary McMillen, Tellei Teply-Bright, Barbara Therese

Assistant professors: Eva Erickson, Hope Sowders

Associate professors: Katharine Rockwell, A. Deidre Clegg, Martha Graham, M. Patricia Donahue, Jeanise Erdahl, Marilyn Prickett, Rita Trenchard, Mildred Wexler, Marie Marie Friedman, Laura Hart, Leslie Macmillan, Eleanor McCollum, Joanne McCreedy, Sorena Powell, Jean Reiser, Elizabeth Stewart

Associate professor emeritus: Daisy Berko, Geraldine Fison, Marjorie Good, Nancy Antinone, Marjorie Lyman, Anne E. Overland, Elma H. Haarman

Assistant professors: Gloria Blumenfeld, Marilyn G. Heyler, Margaret G. Crowell, Judith Devine, Opheo Clark, Mary Handy, Marie Hinch, Martha Johnston, Kathleen Kelly, Laverne Magee, Robert Run, Jean Luber, Senta Lynch, Merle June Moss, Frances Nadler, Lawrence Rubin, Beverly Salter, Frances Schmitt, Mary Therese O'Donnell, June Yang

Assistant professor emeritus: Josie Anna, Mary Rock, Pearl Zifchack

Instructors and Assistants: R. Joan Ahmed, Lucinda Anderson, Mary Aquilino, Trekie Barrick, Celeste Benjamin, Teresa Beane, Mary Ann Boudreau, Timothy Brodkin, Martha Carver, Nancy Cheek, Kathleen Clark, Patricia Clinton, Mary Cornell, Janet Crist, Kenneth Culp, Dawn Delbor, Linda Eastman, Mary Kay Frier, Katharine Freedman, Doree Gardner, Mila Grady, Anne Hunter, Victoria Herrold, Jean Hoag, Constance, Barbara Kammick, Susan Kells, William Killian, Susan Kopp, Ann Martin, Bruce McCarty, Jane McCauley, Sheryl Miller, Paula Mobley, Sue Montag, Judith Murray, Margaret Macay, Arlene Bored, Perle Nettles, Margaret Penttinen, Gregory Peirce, Pamela Sek, William Steward, Susan Williams, Nancy Writer, Karl Turkle

Assistant in instruction: Joan Bolsh, Katie Barsby, Nancy Carroll, Karen Cross, Mary E. Dean, Jane Kangas, Judy Payne, Carla Rockall, Christine Russell, Kay Wilder

Degrees offered: B.S.N., M.A.
The College of Nursing is an integral part of The University of Iowa Health Center, striving to contribute to teaching, research, and patient-care resources that have earned international recognition. The University health center provides an unusually low student-to-instructor ratio, and to contribute their time, interest, and abilities to the many general and special activities of a major and modern university.

Both the baccalaureate and graduate programs of the college are accredited by the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing, the professional accrediting agency for college and university programs of nursing education. The baccalaureate program is approved by the Iowa Board of Nursing, and graduates of the program qualify to take the licensure examinations required for practice as registered nurses.

**Undergraduate Program**

Men and women educated as professional nurses are in demand in a variety of jobs and settings, among them community health nursing services, doctors' offices, clinics, hospitals, army bases, the Peace Corps, the World Health Organization, the Red Cross, and so on. A baccalaureate licensed professional nurse may be engaged in clinical nursing, teaching, research, or private practice.

A bachelors degree program such as that offered by The University of Iowa provides college education for careers in the hospital care of patients and in community agencies such as public health services, schools, and industries. In addition, it provides the essential base for graduate study in nursing. In addition to the advantages of combining general education with specific career preparation, a college or university program offers the advantages—hardly less important—of full participation in the social, cultural, and recreational activities of a highly dynamic campus community. In nursing no less than in other pursuits, a college or university background enables many young people not only to realize their highest career potential, but to achieve the greatest measure of self fulfillment in life.

The baccalaureate program is designed to provide both liberal and professional education. The basic 120-semester-hour program consists of 78 semester hours of liberal arts General Education Requirement courses and supportive prenursing courses, and 50 semester hours of course work in nursing. Students complete the program in four or four and one-half academic years. Course offerings are based on the concepts of health, deviations from health, and nursing intervention, and are presented in progressive levels of complexity from the sophomore through the senior year. The curriculum reflects the current trend in health care delivery toward greater emphasis on nursing as a service rendered outside hospitals and to persons other than the acutely ill.

**Approaches to the College of Nursing**

Students may complete their entire program at Iowa, enrolling the first year in the College of Liberal Arts, or they may transfer from an institution offering a two-year sequence of specific courses approved by the College of Nursing.

Cooperating state institutions in the transfer plan include Iowa State University, the University of Northern Iowa, and Upper Iowa University; and Brown College, Morningside College, Luther College, Simpson, and Wartburg colleges.

Participating community colleges are located in Ottumwa, massacomet, Clinton, Iowa Falls, Ames, Boone, and Fort Dodge.

Completion of the transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing. Admission standards for transfer students are the same as for all other College of Nursing applicants. Prospective transfer students who wish more information about this plan should contact the College of Nursing coordinator, clinical nursing internship program, for specific information about participation.

**Cooperative Clinical Internship**

Cooperative education clinical 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 3.0 or higher. Interested students should contact the College of Nursing coordinator, clinical nursing internship program, for specific information about participation.

**Aging Studies**

Students in the College of Nursing may participate in the Aging Studies Program, which is designed to provide undergraduate students a multidisciplinary approach to gerontology. Students plan their course of study with their academic advisor in close cooperation with the aging studies program coordinator. For further information about the "Aging Studies Program" in the "College of Liberal Arts" section of the Catalog.

**Honors Program**

Students in the College of Nursing may be eligible for invitation to the College of Nursing Undergraduate Honors Program at the completion of the first clinical nursing course. A nursing course grade-point average of 3.5 or higher and a cumulative grade-point average of 3.25 or higher is required.

To continue in the honors program and to be eligible to graduate with honors in nursing, students must maintain a cumulative nursing grade-point average of 3.5 and must complete at least three honors courses in the nursing major. Further information and advisement is available from the College of Nursing.

**Registered Nurses**

For registered nurses who wish to complete the BSN degree and who have completed all required prerequisite courses, challenge examinations, and admission to the College of Nursing, a one-year plan of study is available for registered nursing courses.

Registered nurses planning to enter the baccalaureate program should obtain special information and advisement from the College of Nursing.

**Faculty Advisers**

Advisers from the Undergraduate Academic Advising Center advise pre-nursing students. After admission to the College of Nursing, each student is assigned a nursing faculty adviser.

**Student Organizations**

College of Nursing students have their own Associated Nursing Students and are also eligible for membership in the state and national associations of nursing students.

**Expenses**

Students pay the general University fees throughout the program. They also must purchase uniforms, with shows, 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 and transportation costs for clinical nursing courses.

**Financial Aid**

In addition to the assistance available to University students generally, there are assistance programs specifically for nursing students. For information about financial assistance, write to the University Office of Student Financial Aid.

**Admission**

**High School Background**

The college strongly recommends four years of English, two years of history, three years of mathematics, and one year each of biology, chemistry, and physics. Plus other college preparatory courses selected with the help of the high school counselor.
College Background
To apply for admission to the undergraduate program in nursing, each student must be admissible to The University of Iowa and present: 1) a minimum of 28 term hours completed in an accredited college; 2) successful completion of seven of the fourteen prerequisites to the first clinical nursing course, including successful completion of three of the following science courses: inorganic chemistry, organic chemistry, animal biology, microbiology, human anatomy, human physiology; 3) a minimum grade-point average of 2.2 on a 4.0 scale.

Preclinical Background
Including the biological science courses required for admission to the college, the student must satisfy the following requirements before beginning clinical nursing course work: Rhetoric—4 semester hours (may be satisfied by testing for advanced standing); a student who has earned 6 semester hours of credit in English composition, may complete the speech component after admission.

Mathematics—three years of high school math or a score greater than or equal to 26 on the mathematics battery of the ACT, or completion of a college course in math comparable to or more advanced than intermediate algebra (22M.2).

Physics—one-half year of high school physics or course equivalent; if physics is taken at the college level it may be included in the 38 semester hours required for admission.

Biology—Organic biochemistry 3 s.h.

Anatomy 4 s.h.

Microbiology 4 s.h.

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.

Selection Factors
Faculty of minimum admission requirements, the college admission committee selects those who appear to be the best qualified. The committee may require personal interviews. A physical examination report and specific health screening requirements must be on file at Student Health Services ten days prior to the opening of classes for the first clinical nursing course.

Application Deadlines
Applications must be received by May 1 for the fall semester, and December 1 for the spring semester.

Graduate Program
Master of Arts
The University of Iowa Master of Arts program in nursing is accredited by the National League for Nursing (NLN). The curriculum is designed to build on general and professional baccalaureate study in which nursing is an upper-division offering. For this reason, graduation from a NLN-approved baccalaureate degree program is one of the admission requirements.

The program prepares students in an area of nursing specialization and allows for development of skills in a role area related to their career goals. The curriculum has a 17 semester hour core of advanced nursing courses that are designed to serve as the foundation for specialization and role preparation in specific areas. Since the approach to nursing specialization may be broad or narrow, the curriculum offers three general nursing specialization options that focus on patients' clinical role areas: child health nursing, adult health nursing, and community/public health nursing. Within these specialty areas, students may tailor their plans of study to accommodate their specific interests by arranging for specific sites and types of field experience to fulfill the practical component of the specialization course work; through selection of relevant concepts to be developed in these courses; by selection of specific courses in the supporting areas; and through selection of problems for study in their thesis projects.

Similarly, role preparation is available in three areas: education, administration, and advanced clinical practice. Because the curriculum is intended to be flexible enough to accommodate diverse student interests, the same type of tailoring is possible in the role preparation areas. Students, for instance, may select most of their supporting course work in administration or management in order to allow for maximum preparation in that role area.

Although courses offered by the College of Nursing emphasize a holistic approach to patients or clients, students can concentrate on either the behavioral or biological dimension. Students interested in mental health nursing, for example, may select concepts, field experiences, and supporting course work to expand their knowledge and skill in that area. Role preparation in advanced clinical practice with an emphasis on mental health nursing would further accommodate that interest area. Students, with the assistance of their academic advisers, can design programs of study within a flexible curriculum structure to suit their particular career interests.

Degree Requirements
The 45-semester-hour curriculum ordinarily requires four semesters of full-time study for completion. Part-time and evening study options are available. The student must maintain a 2.5 minimum grade-point average, and must successfully complete both a thesis project with oral defense and a written comprehensive examination. The master's degree curriculum consists of five components:

- Advanced nursing core (17 semester hours): course work in the areas of conceptual and theoretical foundations for nursing (5 semester hours), leadership in nursing (4 semester hours), methods of nursing research (6 semester hours), and two specialized issues seminars (2 semester hours).

- Nursing specialization (8 semester hours): allows the student to build a special area of knowledge and practice that extends beyond the advanced nursing core specialization role in the broad areas of child health nursing, adult health nursing, and community/public health nursing. Students may develop their areas of specialization through their choices of course work and field work experiences; for example, students selecting adult health nursing as their area of specialization may choose experiences with patients in a long-term care facility, a mental health clinic, or in a cancer care unit. Students with unique career goals have the option of further modifying their plans of study under the direction of their academic advisors.

- Role development (6 semester hours): Students may select administration, advanced clinical practice, or education as a role preparation area; two courses, each with a practicum, are offered in these role areas through the College of Nursing. Students electing to develop skills for careers in clinical practice, for example, will enroll for 6 semester hours of advanced clinical practice in addition to courses required for the nursing
specialization component. Students may select particular settings and/or preceptors compatible with their own career goals in fulfilling the practice requirements of these courses.

Supporting courses (9 semester hours): Students may choose their supporting course work in areas related to their nursing specialization or role preparation interests; one supporting science course related to the nursing specialization area is required.

Thesis (3 semester hours): Every student is expected to write and successfully defend a thesis; this involves a systematic inquiry into a nursing problem including such methodologies as historical research, case studies, analytical literature review, surveys, or experimental studies that meet the requirements of the Graduate College.

Plan of Study

The plan of study described below is designed for the full-time student. Students 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 Academic Leadership in Nursing 4 s.h.
Supporting course 3 s.h.
Total 10 s.h.

Spring Semester
96:201 Conceptual and Theoretical Foundations for Nursing II 2 s.h.
96:222 Child Health Nursing I 4 s.h.
or 96:226 Adult Health Nursing I 4 s.h.
96:234 Community/Family Health Nursing 4 s.h.
9:2 Method of Research in Nursing 3 s.h.
Supporting course 3 s.h.
Total 12 s.h.

Second Year

Fall Semester
96:211 Method of Research in Nursing II 3 s.h.
96:223 Child Health Nursing II 4 s.h.
or 96:227 Adult Health Nursing II 4 s.h.
or 96:235 Community/Family Health Nursing II 4 s.h.
96:246 Curriculum Development in Nursing Education 3 s.h.
96:260 Nursing Administration: Process, Roles, and Strategies 3 s.h.
or 96:268 Clinical Specialization: Process, Roles, and Strategies I 3 s.h.
96:270 Thesis 2 s.h.
Total 12 s.h.

Spring Semester
96:206 Professional Seminar: Issues in Nursing 2 s.h.
96:247 Nursing Education: Process, Roles, and Strategies 3 s.h.
or 96:251 Nursing Administration: Process, Roles, and Strategies II 3 s.h.
96:269 Clinical Specialization: Process, Roles, and Strategies II 3 s.h.
Supporting Course 3 s.h.
96:270 Thesis 3 s.h.
Total 15 s.h.

Admission

Students should seek admission to the graduate program in nursing through direct application to the Graduate College of the University.

Minimum requirements for admission to the Graduate College are a completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) Aptitude Test scores; scores from the Test of English as a Foreign Language (TOEFL), when appropriate; and a 2.0 minimum grade-point average for regular admission, or a 2.5 for conditional admission.

In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that the applicant:

- Pass a bachelor's degree with a major in nursing from a program accredited by the National League for Nursing.
- Fulfill the legal requirements for the practice of nursing in Iowa.
- Have an undergraduate grade-point average of at least 3.0 or a demonstrated ability to do graduate work for regular admission, and at least a 2.5 undergraduate grade-point average for conditional admission.
- Have 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 within three years prior to enrollment in the first research course, 96:210.

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 advisor.

Professional Improvement

Some nurses may wish to take course work at the University to fulfill the objective of professional or personal improvement only. Such individuals may request admission to the professional improvement category. This admission status will allow the student to take graduate course work in the University without commitment to a degree objective.

Admission as a professional improvement student requires a formal application, including submission of three recommendations and all academic transcripts. GRE Aptitude 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 candidate, professional improvement students are required to follow the application procedure described in the preceding section. If they wish to seek admission as a master's degree candidate. Only 3 semester hours of the required graduate course work, taken under professional improvement status may be used to fulfill the M.A. requirements.

Continuing Education

Through the Department 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. Continuing education units (CEUs) are awarded for each program on the basis of one unit per 10 clock hours of instruction. Continuing Nursing Education is an Iowa Board of Nursing approved provider of continuing education and is accredited by the National Accreditation Board of the American Nurses Association.
Electives

The current Schedule of Courses lists nursing electives being offered. Courses vary from semester to semester.

9.6.41 Introduction to Gay Studies
Overview of gay studies research and writings which explore the gay in contemporary society, the gay movement, and gay feminism as a social movement. Same as 3.7.4.

9.6.41 Individual Study
Supervised study under clinical practice adjusted to meet needs of student. (Prerequisite: 9.6.20 beginning spring semester.) Same as 3.7.4.

9.6.41 Nursing Process and Pharmacology
9.6.41c House Sexuality
Psychological and physiological aspects of human sexuality; experiences related to needs of the group.

9.6.41d Loss and Death in Clinical Nursing Practice
Exploration of thoughts and feelings relating to dying with these issues and care in the clinical nursing practice. Same as 3.7.4.

9.6.41g Introduction to Genealogy
Stepping closer course focusing on the concept of aging, historical changes in aging, and implications for nursing practice. Prerequisite: elective standing or consent of instructor.

9.6.41h Normative and Psychosocial Aspects of Aging
Designed to acquaint health professionals and social work students with the psychosocial aspects of gerontology. Focus on normative aspects of adult aging and psychosocial aspects of aging.

9.6.41i The Nursing Care of the Internationally Evacuated Child
Analysis of a case of the international evacuation of a child. Emphasis is placed on the role of the nurse in the development of the care to be rendered these children. Same as 3.7.4.

9.6.41j CPR Instructor Certification
Certification for the American Heart Association as an instructor in cardiopulmonary resuscitation. Required of all clinical nurses participating in teaching the learning process in nursing, these classes prepare the participant as an instructor, and enable CPR classes. Prerequisite: CPR certification.

9.6.41k Interventions of Cardiac Arrhythmias
9.6.41l Independent Study
Supervised study under clinical practice adjusted to meet needs of student. (Prerequisite: 9.6.20 beginning spring semester.) Same as 3.7.4.

9.6.41m Nursing Independent Study
A project or experience related to the current objectives of a required nursing course. Prerequisites are waived for students in the Community Health Nursing program. Prerequisites: 9.6.24, 9.6.29, and 9.6.39.

9.6.41n Clinical Specialization Study
A project or experience related to the current objectives of a required nursing course. Prerequisites are waived for students in the Community Health Nursing program. Prerequisites: 9.6.24, 9.6.29, and 9.6.39.

9.6.41o Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41p Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41q Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41r Student Nurse Research
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41s Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41t Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41u Student Nurse Research
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41v Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41w Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41x Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41y Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41z Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41aa Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41bb Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41cc Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41dd Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41ee Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41ff Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41gg Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41hh Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41ii Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41jj Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41kk Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41ll Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41mm Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41nn Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41oo Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41pp Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41qq Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41rr Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41ss Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41tt Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41uu Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41vv Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41ww Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41xx Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41yy Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41zz Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41aaa Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41aab Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41aac Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41aad Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41aee Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41aef Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41aeg Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41aeh Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.

9.6.41ai Community Health Nursing Report
A supervised course under the direct supervision of the faculty member in which the student will write a research paper on a selected topic in Community Health Nursing.

9.6.41aj Student Nurse Research
A supervised course in writing nursing research papers under the supervision of a faculty member.
Dean: Robert A. Wiley
Dean emeritus: Dale E. Worster
Associate dean, director of pharmaceutical affairs: John L. Lach
Assistant dean for undergraduate affairs: David F. Cowen
Head, Division of Medicinal Chemistry-Natural Products: Joseph G. Cyron
Head, Division of Pharmacology-Toxicology: Douglas R. Moskowitz
Head, Pharmacological Sciences and Continuing Education: Captain R. Reisman
Coordinator, Pharmacy Continuing Education: Warren D. Rager
Head, Division of Clinical/Hospital Pharmacy: Dennis E. Helfing
Coordinator, Undergraduate Clinical Pharmacy Education: Paul J. Perry
Coordinator, Graduate Clinical Pharmacy Education: Richard D. Loff
Professor emeritus: Dale E. Worster
Adjunct professor: Lester Chabot
Associate professors: Mary J. Berg, Teo-Fong Chin, Michael W. Ogbey, Douglas B. Taney, Dennis K. Helfing, Warren L. Kerr, Ronald D. Loff, Robert J. Lamkard, Lloyd E. McPhail, J. A. Paul J., Perry, Ronald A. Prince, Clayton R. Bowland, Peter Vorg-Pedersen
Adjunct assistant professor: Mark C. Jones
Associate in pharmacy: Richard Kline
Adjunct assistant professors: Dorothy M. Makr, Gary Smith
Clinical associate professors: Bruce Alexander, James A. Pizzato
Clinical instructors: David H. Bertrand, Bernard J. Cimino, Dennis A. Elbert, Wanda Hedrick, Alex L. Mastro
Degrees offered: B.S., Pharm.D., M.S., Ph.D.
The pharmaceutical sciences are concerned with preparing and dispensing medicinal products and monitoring their activity. The pharmacist, through education and training, can identify, analyze, select, combine, and standardize these medicines, and serves his or her community as a prime source of information on health topics.

The pharmacist is basically a specialist in the science of drugs. He or she must understand drug composition, chemical and physical properties, manufacture and uses, and activity in the normal individual as well as in the ill patient, and must be familiar with tests for strength, purity, and efficacy of drug products. The pharmacist compiles and dispenses prescriptions written by health practitioners—who rely on the pharmacist for information about the availability, activity, toxicology, and contraindications of various drugs. The pharmacist also communicates knowledge of drugs to the patient and to other health professionals.

Nearly everyone is familiar with the community pharmacist and the pharmacy in which he or she practices. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacist who staffs these pharmacies make up the majority of practitioners. More than 100,000 men and women practice in community pharmacies.

Some pharmacists are employed in hospital pharmacy practice. Others work in governmental health agencies, the Public Health Service, Veterans Administration, Food and Drug Administration, and the armed forces.

Many pharmacists assume administrative positions in industry, including manufacturing, research and development, cost control, purchasing, and advertising. Many are employed in pharmaceutical sales as medical service representatives. Pharmacy technicians are especially valuable to these men and women who are responsible for acquiring and packaging products for veterinarians, and other pharmacists with diagnostic responsibilities.

In the United States more people receive total health care than ever before. This expansion of health care will continue. Young pharmacists will face new challenges, expanded responsibilities, and an ever-increasing growth in opportunities.

Undergraduate Program
Students in the College of Pharmacy are in a Bachelor of Science program. They receive professional training and education in a number of areas, including pharmacy technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomics, and clinical and hospital pharmacy.

The colleges of Liberal Arts, Business Administration, Dentistry, and Medicine contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, humanities, and social sciences. The Bachelor of Science program in pharmacy consists of one year of prepharmacy study, then in the College of Liberal Arts at The University of Iowa or at any accredited community college of liberal arts, and four years of pharmacy studies. It is possible to transfer into the College of Pharmacy after two years of college-level work at an approved institution. A student entering the college after two years of preprofessional study can complete the professional program in three years if he or she follows the curriculum. In addition to the basic preprofessional requirements, at least 8 semester hours of organic chemistry, 5-8 semester hours of biology or zoology, 3-4 semester hours of quantitative analysis, and at least 15 semester hours of general education electives.

The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. Graduates of the college are qualified to take the licensure examination given by the Iowa Board of Pharmacy Examiners. Graduation from the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 24 semester hours of electives, and to achieve a pharmacy grade-point average and a total cumulative grade-point average of at least 2.6.

For rules and regulations concerning academic probation, pass-fail, permission by examination, minimum schedule, second-semester only option, waiver of substitute curricula, cancellation of registration, drop date, and correspondence study, see the "College of Pharmacy" section in the current Schedule of Courses.

Admission Requirements
Recent changes in the admission requirements and in the curriculum of the baccalaureate degree program affect students admitted to the college in the fall of 1985 and after. Students admitted prior to the fall 1985 session must satisfy requirements that are different from the following. Questions concerning satisfaction of degree requirements should be directed to the chair of the undergraduate study and curriculum committee.

Preprofessional Course Work
Rhetoric: 8 semester hours, or 6 semester hours of transfer credit in English composition and rhetoric, and 2 semester hours in speech.

General chemistry: 8 semester hours.

Mathematics: 3 or 4 semester hours of a satisfactory differential and integral calculus course.

Physics: may be satisfied with one year of high school physics; students are encouraged to complete 26H Basic Physics.

General education electives: 6 semester hours.

In addition to the required courses in the curriculum, each student must complete 24 semester hours of general education courses. These elective courses should be in the behavioral, social, and humanistic areas of knowledge.

Transfer Students
Students who transfer into the college after two years in a community or liberal arts college, and who were admitted for Fall 1985 and thereafter, can complete the pharmacy program in three years if they have satisfactorily completed courses in organic chemistry, biology or zoology, quantitative analysis, and have satisfied general education requirements. Students who plan to remain in a community college for two years before transferring to The University of Iowa should consult the dean of the College of Pharmacy concerning course requirements.

The Professional Curriculum
First Year
First Semester
4613 Pharmacy Math 3 s.h.
4A14 Physical Chemistry 1 3 s.h.
373 Principles of Animal Biochemistry 3 s.h.
4101 Elementary Quantitative Analysis 4 s.h.
Total 15 s.h.

Second Semester
4814 Pharmacy Orientation 3 s.h.
4822 Organic Chemistry 2 3 s.h.
4841 Organic Chemistry Laboratory 3 s.h.
4011D Principles of Human Anatomy 3 s.h.
**General Education Electives 4-6 s.h.
Total 15-17 s.h.
*Also offered first semester for students on a 2-2 program only.

**In addition to the required courses in the curriculum, each student must complete 24 semester hours of general education courses. These elective courses should be in the behavioral, social, and humanistic areas of knowledge.

Second Year
First Semester
4623 Pharmacology 1 4 s.h.
99182 Biochemistry for Pharmacy Students 4 s.h.
61112 Health Sciences Microbiology 4 s.h.
*4012D Principles of Human Anatomy 3 s.h.
**General Education Electives 0-3 s.h.
Graduate Programs

The college has graduate programs in each of its five academic divisions. Many of the Science and Doctor of Philosophy programs are available in pharmacology, medicinal chemistry-natural products, and pharmaceutical sciences. A Master of Science degree is available in clinical hospital pharmacy.

Advanced study in the pharmaceutical sciences prepares the student for research, teaching, and administrative positions in the pharmaceutical, chemical, and agricultural chemical industries, in colleges and universities, in government agencies, and in a number of health-related institutions and organizations.

The application deadlines, grade-point average for admission, Graduate Record Examination (GRE) Aptitude Test score, and necessary letters of recommendation are the same as those of the Graduate College. The academic requirements for maintaining graduate registration are determined by individual divisions of the College of Pharmacy.

Doctor of Pharmacy

The Doctor of Pharmacy (Pharm.D.) program is a two-year, post-baccalaureate professional degree program that combines didactic course work and clinical clerkship. The program is accredited by the American Council on Pharmaceutical Education. The major goal of the program is to provide the healthcare system with pharmacists who are specifically prepared to undertake an extended role in monitoring, evaluating, and optimizing drug therapy in hospitalized and ambulatory patients. This program is available to limited numbers of highly qualified graduates.

Prospective students may obtain specific information concerning the program by writing to The University of Iowa, College of Pharmacy, Iowa City, Iowa 52242.

Facilities

The Pharmacy Building is located in the health center complex on the University's main campus, in close proximity to the colleges of Medicine, Nursing, and Dentistry. The University of Iowa Hospitals and Clinics, the Rowes Science Building, and the Health Sciences Library are nearby. The Pharmacy Building has a 24-hour structure especially designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms and an auditorium, there are well-equipped separate laboratories for instruction at the undergraduate and graduate levels. The building also houses the Learning Resources Center (LRC), with computer labs and periodic meetings useful to undergraduate and graduate pharmacy students. The LRC has several computer terminals available to students.
46.182 Pediatric Clerkship
Advanced application of clinical pharmacology to pediatrics.
Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.183 Pharmacokinetics Clerkship
Indications and practice experience in clinical pharma- 
ko-kinetics, including the use of pharmacokinetics to achieve 
pharmacokinetic service. Prerequisites: Pharmacy B.A. 
standing and consent of instructor.

46.184 Geriatric Clerkship
Advanced application of principles of geropharmacokinetics 
and geropharmacology. Principles of pharmacokinetics in the 
area of geropharmacokinetics using a computerized 
prescription. Prerequisites: Pharmacy B.A. standing and 
consent of instructor.

46.185 Neurology Clerkship
Basic and advanced clinical practice of 
neuropharmacology related to neurological diseases. 
Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.186 Surgery Clerkship
Advanced application of therapeutic skills necessary for 
the pharmacokinetic management of general surgery 
patients. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.187 Nuclear Pharmacy Clerkship
Advanced clinical instruction in the area of 
radiopharmaceuticals, radionuclide/vascular drug 
interactions, pharmacological intervention in nuclear 
medicine studies, and radiopharmaceutical drug 
information. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.188 Dental College Clerkship
Advanced clinical and teaching skills in the area of graduate 
specialties, including sedation and pain control, dental 
esthetic therapy, and achievement of medication and 
non-medication complex patients. Prerequisites: Pharmacy B.A. 
standing and consent of instructor.

Graduate Clinical-Hospital Pharmacy

46.189 Hospital Pharmacy Survey
2 a.b.
Survey of hospital pharmacy practices, pharmacy 
administration, and practice of pharmacy in hospital 
settings. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.190 Advanced Clinical Pharmacy
2 a.b.
Advanced application of principles of pharmacokinetics 
and pharmacodynamics to the management of patients. 
Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.191 Clinical Pharmacy: Drug Literature
2 a.b.
Studies of current pharmacy practice, including clinical 
pharmacokinetics, and the use of hospital literature in the area of 
clinical pharmacy practice. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.192 Hospital Pharmacy: Seminar 3 a.b.
Topics of current interest in the area of clinical and 
hospital pharmacy. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.193 Hospital Pharmacy: Directed Study 3 a.b.
Independent study of current literature and clinical 
pharmacy practice. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.194 Hospital Pharmacy: Independent Study 3 a.b.
Independent study of current literature and clinical 
pharmacy practice. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.195 Hospital Pharmacy: Independent Study 3 a.b.
Independent study of current literature and clinical 
pharmacy practice. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.196 Hospital Pharmacy: Independent Study 3 a.b.
Independent study of current literature and clinical 
pharmacy practice. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.197 Hospital Pharmacy: Independent Study 3 a.b.
Independent study of current literature and clinical 
pharmacy practice. Prerequisites: Pharmacy B.A. standing and consent of instructor.

46.198 Hospital Pharmacy: Independent Study 3 a.b.
Independent study of current literature and clinical 
pharmacy practice. Prerequisites: Pharmacy B.A. standing and consent of instructor.
Continuing Education

The Division of Continuing Education was established by special legislation of the General Assembly of Iowa to "render a larger service to the Commonwealth and to the people of Iowa by carrying out to every part of the State the knowledge, the thought, the ideals, and the spirit of several departments and colleges of the University and by bringing the University generally into direct contact with the citizens." This division's organization and services include the following:

Center for Credit Programs

The Center for Credit Programs is responsible for the delivery of University of Iowa credit courses to adults and other part-time students, both in Iowa City and throughout the state. In cooperation with the University's various colleges and academic departments, the Center for Credit Programs arranges course delivery to graduate and undergraduate students by making use of the various formats and delivery systems listed below.

Correspondence Courses

Over 100 Guided Correspondence Study courses are available from the colleges of Liberal Arts, Business Administration, Education, Engineering, Medicine, and Nursing. These courses represent a total of 42 departments within the University. Students may enroll at any time and have nine months in which to complete work. A catalog including course listings, grades, and fees is available. Further information may be obtained from Guided Correspondence Study, W400 Seashore Hall.

Off-Campus Classes

The Center for Credit Programs offers off-campus classes from the colleges of Liberal Arts, Business Administration, Education, Nursing, and Engineering. Classes are scheduled where they may best serve the off-campus students, and at the request of public school officials, or where professional, industrial, or other qualified groups indicate a specific need for instruction. The Center also offers a variety of telecourses in cooperation with Iowa Public Televison. Courses generally require a sufficient number of enrollees to meet course expenses. For information, write to Center for Credit Programs, W400 Seashore Hall.

Saturday and Evening Classes

The Center for Credit Programs offers credit courses for part-time undergraduate, graduate, or nonclassified students in the Iowa City area. All courses are offered from schools and departments of the University. For a Saturday and Evening Classes catalog, write to The Center for Credit Program, W400 Seashore Hall.

Bachelor of Liberal Studies Degree

The Bachelor of Liberal Studies (B.L.S.) degree is designed to serve adults who cannot attend as full-time, on-campus students. The program has no residency requirement. Credit toward the degree may be earned through correspondence study, Saturday and evening classes, off-campus courses, and television and multimedia courses. Course work from community and private colleges may be applied toward the degree, as may work done at any of the Iowa Regent universities. The Bachelor of Liberal Studies is awarded by the College of Liberal Arts. For more information contact the Center for Credit Programs, W400 Seashore Hall.

Center for Conferences and Institutes

The center conference center serves as the principal agency of the University for developing, coordinating, and conducting noncredit continuing education programs for noncredit adults and for administering the University's Continuing Education Unit (CEU) program. The center's primary goal is to enhance the usefulness of the University as a center of learning and to provide educational opportunities for people who are no longer full-time students but who seek new knowledge related to their jobs, professions, or special interests.

Each year more than 10,000 adults receive training in the center's various programs, which represent a cooperative effort between the center and the various colleges, departments, and disciplines within the University. The center funnels into a variety of appropriate resources, coupled with the professional planning and execution of conferences and other short-term training programs, helps to ensure the achievement of the educational objectives specified for each program.

The director of conferences is responsible for arranging and conducting or coordinating all conferences, institutes, short courses, and other noncredit continuing education offerings held in the Iowa Memorial Union for groups other than on-campus student groups. All members of the faculty and staff who plan University conferences and other University-related groups function to be held on campus or in the Iowa City-Coralville community are expected to schedule these activities through the conference center office and to utilize the conference facilities, dining services, and lodging accommodations at the Iowa Memorial Union, to the extent that they are available and appropriate.

Radio Broadcasting Services

WURI and KXUI-FM serve the needs and interests of the people of eastern Iowa with 18 hours of daily broadcasting that extend the resources and activities of the University. The broadcast schedule consists of educational, cultural, and informational programming not generally available elsewhere. As an affiliate of National Public Radio (NPR), WURI contributes program material for its broadcast network. In addition, the station broadcasts programs from more than 250 non-commercial radio stations. The main studios and offices are located in 2300 Engineering Building, and a free copy of the station's Program Guide may be obtained by writing to the address.

Institute of Public Affairs

The mission of the institute is to help improve city, county, and state governments in Iowa by serving as the primary research and continuing education link between the University and those governments. Services of the institute are available to state and local government agencies and to citizens groups interested in civic affairs. The institute has a full-time research and training staff. Through the institute, other resources of the University are applied to problems faced by Iowa public officials. The institute also works in close cooperation with organizations of public officials such as the League of Iowa Municipalities and the Iowa State Association of Counties.
The institute provides inservice training and continuing education services to public personnel, primarily managers and supervisors, offering a wide variety of courses and programs aimed at meeting individual and organization needs as well as professional goals.

Research services, informational resources, and publications ranging from Iowa public policy studies to handbooks for elected officials in Iowa governments; and

Organizational assistance ranging from advising on city council goal setting, management systems, and quality circles to serving on state-wide government committees dealing with major concerns of state and local governments.

Iowa Lakeside Laboratory

The Division of Continuing Education has general administrative supervision of the Iowa Lakeside Laboratory, a summer laboratory for the biological sciences on Lake Okoboji, Iowa, where a cooperative program in teaching and research is carried on under the auspices of Iowa State University, University of Northern Iowa, and the University of Iowa. Two terms of five weeks each are held during June, July, and August. Facilities for year-round research are available. For information, write to the Division of Continuing Education. (See listing for "Iowa Lakeside Laboratory"

under the "College of Liberal Arts" section of the Catalog.)

Audiovisual Center

The mission of the Audiovisual Center is to assist University faculty and students in the improvement of the teaching-learning process through the effective use of audiovisual media. To accomplish this objective, the Audiovisual Center provides a full range of services, as follows.

Media Services

The Audiovisual Center Media Library provides a major collection of items for instruction and curricular-related activities, and for rental off campus. Smaller collections of audio tapes, filmstrips, slides, and slides, plus facilities for student or faculty utilization, are also available. Catalogs of these collections are available on request. The library also maintains a reference collection of materials from other sources.

Equipment Services makes available without charge for instructional use: film, slide, filmstrip, opaque, overhead projector, portable projection screen; audio tape recorders; record players; portable public-address systems; and display devices (ebulliometer, easels, boards). There is a nominal charge for projectionist service and for equipment requested for conferences and/or off-campus use. Repair service is available at a nominal charge for all audiovisual equipment.

Media Production

Professional services, facilities, and equipment are available to produce original software in all media:

Graphics—design, layout, paste-up, illustrations, charts, graphs, lettering, etc.

Audio—recording, editing, duplication, transcription services.

Motion picture—scripts, cinematography, and editing.

Photography—portraits, passport, slide shows, filmstrips, 35mm slide duplication, printing and processing services.

Television—video production, color and black and white (1-inch, 2-inch, and cassette); systems design; equipment maintenance; portapak rental.

Fabrication—design and construction of displays, specialized audiovisual equipment, and furniture.

Marketing—sales, distribution, and marketing of University-originated products and services.

Satellite Centers

Satellite centers are established, as need arises, through cooperative arrangements between the Audiovisual Center and departments, schools, colleges, and other service agencies. Satellite centers currently include the Medieval Audiovisual Center, Dental Audiovisual Center, Nursing Audiovisual Center, the Educational Media Laboratory, and the Music Audiovisual Center.

Danforth Chapel
Administrative Officers

State Board of Regents

The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa Health and Human Services Agency, and the Iowa School for the Deaf are governed by the State Board of Regents, consisting of nine members. The board membership is as follows:

President: John McDonald, Des Moines
Vice-President: Ray Farmer, Iowa City
Chairman: John C. Truhlar, Des Moines
Executive Vice-President: J. Wayne Riehle

Central Administration

President: James O. Freedman
Vice-President for Academic Affairs: Richard D. Remington
Vice-President for Educational Development and Research and Dean of the Graduate College: Eugene C. Spruill
Vice-President for Finance and University Services: Donnay D. Ellis, Jr.

Academic Affairs

Vice-President and Dean of Faculties: Richard D. Remington
College of Business Administration
Dean: George D. Daly
Industrial Relations Institute Acting Director: David G. Gallager
Iowa Business Institute Acting Director: Daniel W. Collie
Institute for Economic Research Director: Jerald B. Baker
Institute of Industrial Education and Research Acting Director: Richard C. Poppert
Institute for Entrepreneurial Management Acting Director: Richard C. Poppert

College of Dentistry
Dean: James H. McLaran

Iowa College of Medicine
Dean: Robert A. Wolf
Divisions of Continuing Education
Dean: Emmett L. Vaughan
Audiovisual Center Director: William Ogletby
Center for Conferences and Institutes Director: John W. Brown
Center for Credit Programs Director: Von V. Paterson, Jr.
Community College Affairs Director: Duane C. Anderson
Institute of Public Affairs Director: Clayton Kingsberg
Iowa Lakeside Laboratory Director: Richard V. Bockberg
Radio Station WHO-AM-KLIX Administrator: George S. Klinger
Iowa Center for the Arts
Director: Philip H. Hubbard
Libraries
University Libraries: Dale M. Bentz
Museum of Art
Director: Robert C. Hobbs

College of Engineering
Dean: Robert G. Bohning
Institute of Hydraulics Research Director: John F. Kennedy
Graduate College
Dean: Duane C. Spruill
Institute of Agricultural and Home Economics Director: Rudolph W. Schultz
College of Law
Dean: William Niles
College of Liberal Arts
Dean: Gertrude Loevenberg
School of Art and Art History Director: Wallace J. Tammarini
School of Journalism and Mass Communication Acting Director: John E. Erickson
School of Letters Director: Richard Lloyd-Jones
School of Library and Information Science Director: Carl F. Ogren
School of Music Director: Marilyn F. Seaville
School of Religion Director: John P. Boyk
School of Social Work Director: James Wood Weiland
College of Medicine
Dean: John W. Eickstein
College of Nursing
Dean: Geraldine Felton
College of Pharmacy
Dean: Robert A. Wolf

Old Capitol
Director: Margaret N. Kays
Summer Session
Director: Nancy V. Barnes
Affirmative Action Affairs
Director: June D. Cargile

Educational Development and Research
Vice President: Duane C. Spruill
Division of Sponsored Programs
Director: Margery E. Hopkins
Office of Project Development
Director: Jay Sennel
Office for Child Behavior and Development
Director: Alfred Healy
Health Services Research Center
Director: Samuel Levy
Office of International Education and Services
Director: Stephen M. Arnes
Office of Information Technology
Director: Waeg Computing Center
Director: W. Lee Slope
Public Information and University Relations
Acting Director: Thomas K. Bauer
Occupational Health Services
Director: Paul R. Pomeroy, Jr.
Health Protection
Director: William E. Twaler
State Archaeologist
Duane C. Anderson
University House
Director: Paul Zimmerman

Student Services
Vice President: Philip G. Hubbard
Dean of Student Services: Phillip E. Jones
Admissions
Director:
Registrar
Registrar: Gerald W. Dallam
Residence Services
Director: George L. Devoll
Hancher Auditorium
Director: Wallace Chappell
Iowa Memorial Union
Director: Jean Kendall
Business and Liberal Arts Placement
Director: Nancy C. Roth
University Counseling Service
Director: Gerald L. Stone
Special Support Services
Director: Paul Shaag
Student Financial Aid
Director: John E. Moore
University Evaluation and Examination Service
Director: T. Anne Consery
Orientation Services
Director: Emil Rindemacher
Campus Programs and Student Activities
Coordinator: Kevin Taylor

Office of Services for the Handicapped
Coordinator: Donna Chandler
Women's Resource and Action Center
Coordinator: Susan Buckley

Finance and University Services
Vice-President: Donald D. Ellis, Jr.
Business Office
Business Manager: Michael J. Finnegan
Acting Treasurer: Richard A. Stevenson
Controller and Secretary: Douglas N. Young
University Personnel Services
Acting Director: George A. Schulte
Planning and Administrative Services
Director: Richard E. Glisson
Intercollegiate Athletics for Men
Director: Chalmers W. Potter
Intercollegiate Athletics for Women
Director: Christine Grant
Recreational Services
Director: Harry R. Ostrander

University Health Services
Assistant to the President for Statewide Health Services: John W. Collins
University Hospitals and Clinics
Director: John W. Collins
Psychiatric Hospital
Director: George Windiar
State Hygienic Laboratory
Director: William J. Hausler
University Hospital School
Director: Alfred Hailey
Student Health Services
Acting Director: Mary L. Khowarsak
Regional Child Health Specialty Clinics
Director: John C. MacQueen

General University
Alumni Association
Executive Director: Thomas L. Brown
University of Iowa Foundation
President: Donald D. Wyrick

Old Capitol


Zohol, James H., B.S. College of St. Thomas 1962, M.D. Iowa 1967, clinical associate professor, Pediatrics, 1973

Zurkovich, Veljko K., M.D. Belgrade (Yugoslavia) 1953, clinical assistant professor, Pediatrics, 1973


Zohol, Martha, B.A. Linfield 1955, M.S.W. Iowa 1965, associate professor, School of Social Work, 1980


Admission Rules
Common to the Three State Universities

720—1.2(262) Admission of undergraduate students directly from high school

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice. Applicants must submit a formal application for admission, together with a $10.00 application fee, and have their secondary school provide a transcript of their academic record, including credits and grades, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Aptitude Test (SAT), or the equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. Applicants may be required to submit additional information or data to support their applications.

1.1(1) Graduates of approved Iowa high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating class will be admitted. Applicants who are not in the upper one-half of their graduating class may, after a review of their academic and test records, and at the discretion of the admissions officers:
   a. Be admitted unconditionally,
   b. Be admitted conditionally,
   c. Be required to enroll for a trial period during a preceding summer session, or
d. Be denied admission.

1.1(2) Graduates of accredited high schools in other states may be held to higher academic standards, but must meet at least the same requirements as graduates of Iowa high schools. The options for conditional admission or summer trial enrollment may not necessarily be offered to these students.

1.1(3) Applicants who are graduates of nontraditional high schools will be considered for admission in a manner similar to applicants from traditional high schools, but additional emphasis will be given to courses obtained on standardized examinations.

1.1(4) Applicants who are not high school graduates, but whose classes have graduated, may be considered for admission. They will be required to submit all academic data so to the extent that it states and acknowledges grades obtained from standardized examinations which will demonstrate that they are adequately prepared for academic study.

Students with superior academic records may be admitted on an individual basis, for part-time university study while enrolled in high school or during the summers prior to high school graduation. In rare situations, exceptional students may be admitted as full-time students to a regent university before completing high school. Early admission to a regent university is provided to ensure presents whose academic achievements and personal and intellectual maturity clearly suggest readiness for collegiate level study. Each university will specify requirements and conditions for early admission.

720—1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice. Applicants must submit a formal application for admission, together with a $10.00 application fee, and request that each college they have attended send an official transcript to the admissions office. Each high school academic record and standardized test score results may also be required. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English.

1.2(1) Transfer applicants with a minimum of twelve semester hours of graded credit from regionally accredited colleges or universities, who have maintained a "C" average (2.00 based on an "A" grade being 4 points) for all college work previously attempted, will be admitted. Higher academic standards may be required of students who are not residents of Iowa. Applicants who have not maintained a "C" average or who are under academic suspension from the last college attended may, after a review of their academic and test records, and at the discretion of the admissions officers:
   a. Be admitted unconditionally,
   b. Be admitted conditionally,
   c. Be required to enroll for a trial period during a preceding summer session, or
d. Be denied admission.

1.2(2) Admission of students with fewer than twelve semester hours of college credit will be based on high school academic and standardized test records in addition to review of the college record.

1.2(3) Transfer applicants under the 1.2(1) provision will not be considered for admission until information concerning the reason for the suspension has been received from the college granting admission. Applicants granted admission under these circumstances will be admitted on probation.

1.2(4) Transfer applicants from colleges and universities not regionally accredited will be considered for admission on an individual basis taking into account all available academic information.

720—1.3(262) Transfer credit practices

The regent universities endorse the Joint Statement on Transfer and Award of Academic Credit approved in 1970 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (CPA). The current issue of Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and publications of the Council on Postsecondary Accreditation (CPA) 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 is awarded determined by the receiving university to be of a remedial, vocational, or technical nature, 6 credit in courses or programs in which the main goal is not directly involved, 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 baccalaureate degree if this credit is earned after the total number of credit hours accumulated by the student at all institutions attended exceeds once in the number of credit hours required for that degree.
1.3(2) Students from colleges and universities which have not received accreditation
Credit earned at colleges and universities which have not received accreditation for
accreditation by a regional association is
accordance for transfer in a manner similar to
that from regionally accredited colleges and
universities if the credit is applicable to
the bachelor's degree at the receiving
university.
Credit earned at the junior and senior
classification from an accredited two-year
college which has received approval by a
regional accrediting association for change
to a four-year college may be accepted by
a region university.
1.3(3) Students from colleges and
universities not regionally accredited
When students are admitted into colleges and
universities not regionally accredited,
they may validate portions or all of their
transfer credit by satisfactory academic
study in residence, or by examination. Each
university will specify the amount of the
transfer credit and the terms of the
validation process at the time of admission.
In determining the acceptability of transfer
credit from private colleges in Iowa which do
not have regional accreditation, the
regent's committee on educational relations,
upon request from the institutions,
will evaluate the nature and standards of the
academic program, faculty, student records,
library, and laboratories.
In determining the acceptability of transfer
credit from colleges in states other than Iowa
which are not regionally accredited,
acceptance practices indicated in the
Curriculum Guide of the American Council on
Practices of Selected Educational Institutions will be
used as a guide. For institutions not listed in
its publication, guidance is requested from the
designated reporting institution of the
appropriate state.
1.3(4) Students from foreign colleges
and universities
Transfer credit from foreign educational
institutions may be granted after a
determination of the type of institution
involved and after an evaluation of the
level, level, and comparability of the
study to courses and programs at the
receiving university. Credit may be granted
in a manner consistent with that of
institutions and to those of a
degree student, immediately prior to the
beginning of the term for which resident
classification is sought. (2) Reliance upon
Iowa sources for financial support.
(3) Domicile in Iowa of persons legally
responsible for the student. (4) Former
domicile in the state and maintenance of
significant connections therewith prior to
residence. (5) Ownership of a home in Iowa.
(6) Admission to a licensed practising
generation in Iowa. (7) Continuance of an
offer of permanent employment in Iowa.
Continuous presence in Iowa during
periods when not exclusively present.
Other factors indicating intent to make
Iowa the student's domicile will be
considered by the universities in classifying
the students.
1.4(1) General
a. A person enrolling at one of the three
distinction schools shall be classified as a
resident or nonresident for admission, fee
and tuition purposes by the registrar or
someone designated by the registrar.
The decision shall be based upon information
furnished by the student and other relevant
information. The registrar, or designated
person, is authorized to require such
written documents, affidavits, verifications,
or other evidence deemed necessary to
determine the domicile of a student. The
burden of establishing that a student is
domiciled in Iowa is upon the student.
b. In determining resident or nonresident
classification, the issue is essentially one of
domicile. In general, the domicile of a
person is that person's true, fixed,
prior home and place of habitation. It is
the place to which, whenever the person is
absent, the person has the intention of
returning.
c. Under these regulations, a resident
student is defined as one who is domiciled
in the state of Iowa. A nonresident student
is defined as one whose domicile is
elsewhere. A student shall not be
classified domiciled in Iowa unless the
student is in continuous physical residence
in this state and intends to make a
permanent home in Iowa.
d. A person who comes to Iowa from
another state and enrolls in any institution of
postsecondary education for a full
program or substantially a full program
shall be presumed to have come to Iowa
primarily for educational reasons rather
than to establish domicile in Iowa. Such a
person shall be classified nonresident
unless and until such person can
demonstrate that the previous domicile has
been abandoned and an Iowa domicile
established.
1.4(2) Facts
a. A person who is moved into the state as
the result of military or civil orders from
the government for other than educational
purposes, or the dependent of such a
person, is entitled to resident status.
However, if the arrest of the person under
orders is subsequent to the beginning of
the term in which the dependent is first
enrolled, nonresident tuition will be
charged in all cases until the beginning of
the next term in which the student is
enrolled.
b. A person or the dependent of a person
whose legal domicile is permanently
established in Iowa, who has been
classified as a resident for tuition purposes,
can continue to be classified as a resident
as long as such domicile is maintained,
even though circumstances may require
extended absence of said persons from
the state. It is required that persons who
claim Iowa domicile while living in another
state or country will provide proof of the
continued Iowa domicile such as:
the evidence that they have not acquired
a domicile in another state. (2) they have
maintained a continuous visiting record in
Iowa; (3) they have filed regular Iowa
resident income tax returns during absence
from the state.
c. Domicile of property in Iowa, or the
payment of Iowa taxes, does not in itself
distinguish domicile.
d. A student who willfully gives incorrect
or misleading information to evade payment
of tuition will be subject to serious disciplinary
action and must also pay the nonresident fee for
each term attended.
e. An alien who has an immigration visa
may not be domiciled in Iowa in the same
manner as a United States citizen.
1.5 A person who has been certified as a
refugee by the appropriate agency of the
United States who enrolls as a student at
a university governed by the Iowa state
board of regents may be accorded
immediate resident status for tuition
purposes where the person's (1) Comes
directly to Iowa from a refugee facility or
port of debarkation; or (2) Has resided in
another state for 180 days or less; and (3)
Provides satisfactory documentation that
the person has an Iowa sponsor.
Any refugee not meeting these standards
will be presumed to be a nonresident
for tuition purposes and thus will be
subject to the usual rules for the
establishment of an Iowa domicile.
1.6 (g) Effective July 1, 1977, requires
that military personnel who claim
residency in Iowa (home of record) will be
required to live Iowa resident income tax
residents. (5) Other public records, for
example marriage and record, Iowa
driver's license.
returns. Military personnel will be expected to have filed their income tax returns regularly if resident status is to be maintained.

b. Change of classification from nonresident to resident will not be made retroactive beyond the term to which application for resident classification is made.

1.4(3) Guidelines
The following guidelines are used in determining the resident classification of a student for tuition purposes.

a. A student may be required to file any or all of the following:
(1) A statement from the student describing employment and expected sources of support as a student;
(2) A statement from the student's employer;
(3) A statement from the student's parents verifying nonsupport and the fact that the student was not listed as a dependent on tax returns for the past year and will not be so listed in future years;
(4) Supporting statements from persons who might be familiar with the family situation.

b. A financially dependent student whose parents move from Iowa after the student is enrolled remains a resident provided the student maintains continuous enrollment. A financially dependent student whose parents move from Iowa during the senior year of high school will be considered a resident provided the student has not established domicile in another state.

c. A student who was a former resident of Iowa may continue to be considered a resident if without an absence from state for a period of less than twelve months and provided domicile is re-established. If the absence from the state is for a period exceeding twelve months, resident status would need to be re-established in the same manner as for an initial move to the state, unless evidence can be presented showing how Iowa residence has been maintained prior to the established criteria. However, a long-term former resident who returns within an absence of more than one year but less than two years is allowed to regain residency after one year even though a full-time student.

d. A student who has been a continuous student at the University of Iowa, is enrolled in the fall semester of the academic year, and whose parents move to Iowa may become a resident at the beginning of the next term provided the student does not move upon the parents for major financial assistance.

e. A student who moves to Iowa may be eligible for resident classification at the next registration following twelve consecutive months in the state provided the student is not enrolled for more than eight credit hours (four credit hours during the summer session) in any academic year term and provides sufficient evidence of establishment of an Iowa domicile.

f. If a person is engaged in a religious vocation, Peace Corps, Vietnam, or similar military service as a nonresident, resident classification is maintained if the person immediately returns to the state following the assignment. A person who enters such service from the state and who is on furlough may be considered a resident if the person is returning to the field. If service has been terminated prior to returning to Iowa, the person would be presumed to be a nonresident if the return to the state was more than twelve months from the termination of the service.

1.4(4) Review committee
These regulations shall be administered by the registrar or someone designated by the registrar. The decision of the registrar or designated person may be appealed to a university review committee. The finding of the university review committee may be appealed to the Iowa state board of regents.

2.0—1.5(262) Registration and transcripts—general
A person may not be permitted to register for a course or courses at a state board of regents institution until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent has been paid.

A state board of regents institution may withhold official transcripts of the academic record of a person until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent has been paid.

Supplemental Specific Rules for The University of Iowa

2.0—21(262) Formal application for admission
All applicants for admission to any college of the University of Iowa must submit a formal application for admission with the required official transcripts and other supporting material as required to the director of admissions. Students may not be registered until they have been issued as admission statement by the director of admissions.

2.0—23(262) College of business administration
2.3(1) Applications for admission
Applicants for admission to the college of business administration should be submitted to the director of admissions. Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced in advance of the opening date of any session.

2.3(2) Requirements for admission
For admission to the college of business administration an applicant must have—

a. Completed specific course work as prescribed by the faculty of the college.

b. Attained satisfactory grades on the university’s required 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 provisional admissions.

Fullfilment 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.

2.0—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 in advance of the opening date of any session.

Applications for admission to the college of dentistry are considered only as applicants meet the minimum requirements leading to a baccalaureate degree before entering dentistry. Applicants should consider a combined program of liberal arts and dentistry which would qualify them for a baccalaureate degree upon the completion of the freshmen 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.

Fullfilment of the specific requirements for admission to the college of dentistry is determined by the admissions committee. 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 in advance of the opening date of any session.
The college curriculum must include at least three academic years of accredited work comprising not less than ninety-six semester hours and including specific required science courses as prescribed by the faculty of the college. Electives should be chosen so as to give the applicant a well-rounded educational background.

In order to meet minimum scholarship requirements the applicant should attain a cumulative grade-point average of 2.5. Since the quality of course work in predental science is basic to success in dentistry, special consideration to such college work is given by the admissions committee. The grade-point average is based upon the University of Iowa's marking system in which a grade of 'A' is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of dentistry.

Applicants who have completed the requirements for admission to dentistry five or more years prior to seeking admission to this college of dentistry will be considered by the admissions committee only under exceptional conditions.

Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents.

Personal interviews will be required of applicants for admission to the college of dentistry. Applicants will be notified when they should appear for the required interviews with members of the admissions committee.

All applicants must complete the dental aptitude test sponsored by the council on dental education and the American Dental Association. Tests are given three times annually. The University of Iowa is a testing center.

To facilitate early selection, applicants for admission to the college of dentistry are urged to complete the aptitude test no later than October 1 in the year the admissions committee begins its selection in December.

Accepted applicants are required to make the required deposit within two weeks after notification of acceptance to reserve their applications. This deposit is not refundable but is credited toward the first year's payment. The applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Applicants accepted for admission are required to submit a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance.

All applicants must also complete, through student hour service, an 18-kg lift of the chest and a successful vaccination against influenza prior to registration.

2.4(2) Advanced standing

Applications for admission with advanced standing are handled as individual cases.

2.5—2.5(262) College of engineering

Address all inquiries regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced well in advance of the opening date of any session.

2.6(1) Admission of freshman students

The applicant must submit a formal application for admission and must have the secondary school provide a certificate of high school credits, including a complete statement of the applicant's high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence such as a certificate of health that may be required by this university.

Each applicant must have attained satisfactory scores on the university's required admission examinations, maintained a satisfactory cumulative grade-point average, achieved satisfactory rank in graduating class, and successfully completed all prerequisite courses. The university with the approval of the state board of regents shall establish and periodically review specific minimum requirements for admission to the college of engineering. Among the limits 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 alter a review of the applicant's record. (a) Admit unconditionally, (b) admit on probation, (c) require enrollment for a trial period during a preceding summer session or (d) deny admission.

2.5(2) Admission of undergraduate students by transfer

The applicant must submit a formal application and official transcript of college work. Each applicant should have:

a. Maintained satisfactory progress in mathematics.
b. Attained satisfactory scores on the university's required admission examinations.
c. Maintained a satisfactory cumulative grade-point average on all college work undertaken.

From applicants who do not meet the required requirements the director of admissions will review individual records and may offer probationary admission.

720-2.5(262) Graduate college

Graduation of any college or university accredited by regional accrediting agencies may if the academic record is satisfactory be admitted to the graduate college. Admission to the graduate college is not the equivalent of acceptance as a candidate for an advanced degree. Such acceptance is for the purpose of the competition in residence of work at the university and upon recommendation of the major department and approval of the dean of the graduate college. The acceptance of a student as a degree candidate is determined upon the merits of each individual case.

A student who is within four semester hours of having satisfied all the requirements for the baccalaureate degree at the University of Iowa may be given a tentative admission to the graduate college.

720-2.7(282) College of law

2.7(1) Application for admission

Address all inquiries concerning admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.

Beginning students may enter the college of law only in the summer session or the fall semester. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

To be considered for admission, an applicant should have attained a combined GPA equal to at least 2.3 on college work undertaken. The grade-point average is determined by 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 college of law.

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the college of law.

Each applicant for admission must take the Law School Admission Test administered by the Educational Testing Service, Princeton, New Jersey, and have his or her score forwarded to the college of law. The test is given several times per year and may be taken at various locations in the United States or throughout the world. Applicants are urged to take the test in the fall or winter preceding the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not insure admission to the college of law. From the above requirements and 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 student may be eligible for admission if the student (a) has attended a school approved by the Association of American Medical Schools; (b) is in good standing at the time of withdrawal (evidenced by a letter from the dean of the school from which transferring); (c) meets the admission requirements for beginning students; and (d) has done substantially above average work in the law school the student attended. When an applicant has completed more than one year of law study, advanced standing will be permitted only in exceptional cases. Applicants for admission with advanced standing should comply with the procedures required for admission to the first year class.

720—2.8(262) College of medicine

2.8(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Eligibility for specific requirements for admission listed below does not insure admission to the college of medicine. From the applicants meeting the specific requirements, the admissions committee of the college of medicine will select those applicants whose medical 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;

b. Have completed three years of a combined baccalaureate–medicine curriculum which qualifies the applicant to receive a combined B.S. and M.D. on completion of the first year in medicine; or

c. Have completed three years of a baccalaureate program which includes the general graduation requirements of the college of liberal arts of the University of Iowa for the combined baccalaureate degree.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work as outlined below will be considered in conjunction with the requirements for admission to the college of medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years prior to seeking admission to this college of medicine will be considered by the admissions committee only under exceptional conditions.

The college curriculum must include at least three years (equivalent to ninety-six semester hours) including specific required science courses as prescribed by the faculty of the college.

Students planning to study medicine should bear in mind that other college work is required in addition to preprofessional 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 Evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. As the quality of work in premedical science is very basic to success in medicine, special attention will be given by the admissions committee to grades in sciences. The grade-point average is based upon the University of Iowa's ranking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of medicine.

Preference will be given to applicants with high scholastic standing who are residents of Iowa, and consideration will also be given to outstanding nonresidents.

Applicants for admission are required to take the medical college admissions test which is administered for the Association of American Medical Colleges. Applicants are requested to complete this test in May or June of the year preceding that for which they are applying for admission. Students may make arrangements to apply for this examination through the University of Iowa's examination service, the University of Iowa.

Personal interviews will be required. Applicants will be contacted for the appointment for required interviews. Applicants accepted for admission are required to submit a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance. All applicants must also complete, through Student Health Service, a six-inch film of the chest and receive their vaccination against smallpox prior to registration.

2.8(2) Admission to advanced standing

If their work preparatory to entering a college of medicine would have met entrance requirements of this college, students from other approved medical colleges may be admitted to advanced standing according to the following conditions:

Only applicants of high scholastic standing will be considered.

They must present certificates showing that they have satisfactorily completed courses equivalent to those already pursued by the class they wish to enter. The committee on admission to advanced standing will decide in each case whether the examinations in the various subjects will be required.

Applications will be considered only upon receipt of a statement from the dean or registrar of the college from which the applicant courses, showing the actual amount of time the student spent in the study of medicine, the courses taken and the grades received, together with a statement of the work preparatory to entering upon the course in medicine.

No advanced standing will be granted to students from other than approved medical schools. Students may be granted subject credit upon recommendation of the head of the department concerned, for work taken in other than medical schools.

2.8(3) Unclassified students

Applicants for admission to the college of medicine who are not candidates for a degree but who desire to register for special subjects, will be admitted to any lecture or laboratory course only upon complying with all the regular requirements for admission to such course or by action of the faculty upon recommendation of the permission in charge of the course.

720—2.9(262) College of nursing

Applications for admission to the college of nursing should be submitted to the Director of Admissions, The University of Iowa, Iowa City, Iowa. Applicants for admission are required to complete a course in general education in nursing must present a minimum of thirty-three semester hours completed in accredited college. For admission to the college of nursing an applicant must have:

1. Completed specific course work as prescribed by the faculty of the college.

The director of admission will provide a list of all eligible students. Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and, upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimum requirements listed above, however, does not ensure admission to the college of nursing. From those applicants meeting the minimum requirements, the admissions committee will select the applicants whom, in their judgment, appear to be best qualified.
2.10(1) General basis for admission

Fulfillment of the specific requirements for admission does not ensure admission to the college of pharmacy. From the applicants meeting the specific requirements, the admissions committee will select those applicants who in their judgment appear to be best qualified. Applicants for admission to pharmacy should have graduated from an approved high school or have an equivalent amount of training.

2.10(2) College work

The college work as outlined below will meet the minimum academic requirements for admission to the college of pharmacy. The minimum should include thirty-two semester hours of college level work exclusive of credit in military and air science and physical education. The thirty-two 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 these requirements by presenting six semester hours of credit in English composition and rhetoric and two semester hours of credit in speech or an eight-semester-hour course in communication skills.

Inorganic chemistry and quantitative analysis, eight semester hours.

College mathematics, eight semester hours.

Physics or zoology, eight semester hours.

Students from other institutions may substitute a comparable eight-semester-hour course in biology in lieu of zoology.

Military or air science (if available), zero to two semester hours.

Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.10(3) Scholarship and application deadline

To be considered for admission to the college of pharmacy, students must have earned a 2.0 or C average on all college work undertaken. The minimum grade-point average of 2.0 is based on the state University of Iowa's marking system in which the grade of "A" is equivalent to four points. Applications for admission and the required official transcripts should be filed before March 1 for the class to enter pharmacy in September.

2.10(4) Required tests

Applicants for admission are required to take the American College Testing Program test.

2.10(5) Current requirements

Applicants who have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education may have their college academic average acceptable be admitted and granted advanced standing toward the degree of bachelor of science in pharmacy.

720—2.11(262) College of liberal arts

Applicants for admission to liberal arts must meet the rules that are common to the three state institutions in Iowa as listed in 1.12(262), 1.13(262) and 1.13(262).

720—2.12(263) College of education

Students at the university desiring provisional work in education are registered in the college of liberal arts or the graduate college. Requirements for permission to take teacher-training courses are listed in the university catalog.
INDEX

For information about the admissions requirements, degree requirements, and collegiate policies of the respective colleges, see those pages: Liberal Arts, 34-316; Business Administration, 241-257; Dental School, 258-273; Education, 274-313; Engineering, 314-345; Graduate, 346-359; Law, 360-365; Medicine, 366-367; Nursing, 406-413; Pharmacy, 414-417.

A

Academic achievement, recognition, 6; Liberal Arts, 48; Business Administration, 241; Engineering, 319; Advising officers, 17; Academic personnel, 424; Academic programs, 7; Academic records, 11; Academic services, 17; Academic sessions, 8; Accounting, 246; Accounting Research, Ira B. McClayder Institute of, 26; Accreditation and associations, 7; Actuarial Science, Statistics and, 163; ACT test scores, 9; Administrative Code, Board of Regents, 455; Administrative offices, 422; Admission, general, 9; Liberal Arts, 48; Business Administration, 242; Dentistry, 260; Education, 275; Engineering, 315; Graduate, 351; Law, 362; Medicine, 369; Nursing, 409; Pharmacy, 415; Adelphi education/noncredit program, 420; Advanced placement program, 49; Advising, personal advisors, 17; Nursing, 409; Aerospace Military Studies (Air Force ROTC), 50; Afro-American Cultural Center, 19, 51; African-American World Studies, 32, 51; African Studies Program, 54; Aging Studies Program, 55, 348, 406; Agricultural and Occupational Health, Institute of, 401; Alumni Association, The University of Iowa, 32; Alzheimer’s Disease Research Center, 367; American Studies Program, 56; Anatomy, 372; Anesthesiology, 373; Anthropology, 58; Application, deadline, 10; fees, 9; procedure, 11; Applied Mathematical Sciences, 155, 348; Art and Art History, 36, 61; Art, Museum of, 39; Arts Center Outreach, 31; Arts, Iowa Center for the, 30; Asian Languages and Literature, 67; Associated Medical Sciences, Division of, 371, 374; Associations, 7; Asthma and Allergic Diseases Center, 26; Astronomy, Physics and, 163; Audiovisual Center, 421; B

Biochemistry, 71, 380; Biomedical Engineering, 323; Biophysics, Physiology and, 389; Birth Defects and Genetic Disorders Unit, 26; Botany, 76; Broadcasting and Film, 31, 89; Business Administration, College of, 240-257; Accounting, 346; Economics, 249; Finance, 251; Industrial Relations and Human Resources, 252; Industrial Relations Institute, 425; Institute for Econometric Research, 245; Institute for Insurance Education and Research, 245; Labor Center, 245; Management Center, 245; Management Sciences, 254; Marketing, 256; C

Campus Information Center, 18; Campus Programs and Student Activities, 18; Campus visits, 11; Cancer Center, 367; Cardiovascular Research Center, 367; Career information, placement services, 17; Career Resource Center, 17; Casing Information, 1; Centers, 26; Central research facilities, 23; Chemical and Materials Engineering, 325; Chemistry, 40; Chicanos/Latino-American Cultural Center, 19; Chinese (Asian Languages and Literature), 87; Civil and Environmental Engineering, 329; Classics, 62; Clinical Research Center, 367; Code of Student Life, 21; Collaborative Studies of Allergic Disorders, 21; College-Level Examination Program (CLEP), 49; Communication (major), 87; Communication Studies, 85; Communication education, 86; Communication research, 88; Communication Study, Iowa Center for, 143; Communication, mass, 140; Community College Affairs, Office of, 11; Comparative Legislative Research Center, 183; Comparative Literature, 90; Computer-Aided Design, Center for, 222; Computer-Aided Image Analysis Facility, 23; Computer Engineering, Electrical and, 333; Computer Science, 156; Computing Center, West, 25; Conferences and Institutes, Center for, 420; Continuing Education, Division of, 420; Nursing, 412; Cooperative Education, 17; Engineering, 318; Correspondence courses, 420; Counseling Service, University, 19; Counterdrug Education, 278; Credit by examination, Liberal Arts, 49; Business Administration, 242; Engineering, 319; Credit Programs, Center for, 420; Credit requirements, Liberal Arts, 37; Criminal justice and corrections (Sociology), 216; Cultural centers, 19; D

Dance, Physical Education and, 178; Dance Program, 31; Dance, Liberal Arts, 8, 48; Business, 241; Engineering, 319; Degrees offered, University, 7; Liberal Arts, 35; Business Administration, 241; Dentistry, 259; Education, 275; Engineering, 315; Graduate College, 347; Law, 361; Medicine, 367; Nursing, 409; Pharmacy, 415; Degree requirements, Liberal Arts, 37; Dental Health Education, Bureau of, 28; Dental Hygiene, 281; Dental Service, 28; Dentistry, College of, 295-297; Clinical Management Concepts, 261; Dental Hygiene, 261; Endodontics, 263; Family Dentistry, 264; Forensic Odontodics, 264; Operative Dentistry, 265; Oral Pathology and Diagnosis, 266; Oral and Maxillofacial Surgery, 267; Orthodontics, 269; Pediatric Dentistry, 269; Periodontics, 270; Preventive and Community Dentistry, 271; Removable Prosthodontics, 272; Dentistry, 262; Diabetes and Endocrinology Research Center, 367;
INDEX 465

Dietetic Internship, 387
Disease, 387
Dentist, 387
Dentist for Dental Research, 25

E

Early Childhood and Elementary Education, 245
Economic Research, Institute for, 245
Economics, Business Administration, 248: Liberal Arts, 29
Educational Administration, 286
Educational Development and Research, 23
Electrical and Computer Engineering, 333
Electron Microscopy Facility, 23
Electron Probe Microanalysis Facility, 23
Elementary Education, Early Childhood, and, 281
Endodontics, 103
Engineering (major), 337
Engineering, 341
Environmental Engineering, Civil and, 329
Evolution and Examination Service, 33
Evolutionary ecology and behavior, 348
Exemption examinations, Liberal Arts, 102

F

Fair housing policy, 20
Family-Based Services, National Resource Center on, 26
Family Dentistry, 364
Family Housing, University, 20
Family Practice, 382
Fees, tuition and, 11
Film, Broadcasting and, 31, 89
First and Critical Studies in Paris, Inter-University Center for, 349
Finance, 251
Financial aid, 12

G

General Education Requirements, Liberal Arts, 27
General Information, 4
General courses, 18
General Studies, Bachelor of, 43
Geology, 111
Geography, 112
Geography, 118
Geology, 123
Global Studies, 136
Graduate and professional college examinations, 15
Graduating procedures, Liberal Arts, 45
Graduate College, 300-399: degree programs, 347: financial assistance, 350: Graduate Student Senate, 351: joint Law and Graduate degree programs, 350: joint programs within the Graduate College, 350: rules and regulations, 351
Graduation requirements, Liberal Arts, 37
Grants, student, 13
Greek (Classics), 82
Gynecology, Obstetrics and, 392

H

Hancher Auditorium, 31
Handicapped, Office of Services for, 18
Health Center, The University of, 27
Health Occupations Education, 28
Health Sciences Library, 28
Health Services, Student, 19
Health Services Research, Center for, 25, 385
High Field Nuclear Magnetic Resonance Facility, 24
High school preparation, 11
High Speed Computing Facility, 24
History, 128
Home Economics, 133
Honors and Intercollegiate Societies, 8
Honors Program, Liberal Arts, 48: Business Administration, 242: Nursing, 401
Hospital and Health Administration, 384
Hospital and Clinics, The University of Iowa, 27
Hospital School, University, 29
Housing, 30
Human Nutrition, 286
Human Rights, University policy, 21
Hydraulic Research, Institute of, 321
Hygienic Laboratory, 29

I

Industrial and Management Engineering, 337
Industrial Relations and Human Resources, 252
Industrial Relations Institute, 245
Institute, 25
Insurance Education and Research, Institute for, 245
Intercollegiate athletics, 19
Interdisciplinary Ph.D. programs, ad hoc, 394
Interdisciplinary programs, Liberal Arts, 36
Interdisciplinary programs and centers, Medicine, 307
Internal Medicine, 387
International Affairs and Comparative Studies, Center for, 348
International Center, 19
International Education and Services, Office of, 17
International Writing Program, 31, 98
Intramural sports and recreational activities, 19
Iowa Administrative Code: Board of Regents, 455
Iowa Central Art Arts, 39
Iowa Memorial Union, 19
Iowa Student Studies Group, 349
Italian, French and, 107

J

Japanese (Asian Languages and Literature), 67
Journalism and Mass Communication, 140
Jobs, 13

L

Laboratory Center, 245
Laboratories, 26
Lakeview Laboratory, Iowa, 74, 139, 421
Language House, 108, 124
Large Scale Fermentation Facility, 24
Laser Facility, 24
INDEX 467

Residence halls, 20
Rhetoric Program, 204
Rhetorical Studies, 86
Ronald McDonald House, 29
Russian, 294

S
SAT test scores, 9
Sanskrit (Asian Languages and Literature), 67
Satellite centers, 421
Saturday and Evening Class Program, 420
Schizophrenia Research Center, 26
Scholarships, 12
School Executives, Institute for, 26
Science Education, 206
Secondary Education, 390
Services, academic, 17
Sessions, academic, 8
Sexual harassment policy on, 21
Social Science Data Archive, 189
Social Studies Education, 269
Social Work, 211
Sociology, 215
Sonorita, 26
Spanish and Portuguese, 219
Special Education, 309
Special Support Services, 18
Specialized Child Health Services, 29
Speech, Language, and Hearing Clinic, 30
Speech Pathology and Audiology, 225
Speech Pathology and Audiology, Council on, 19
Sponsored programs, 24

Specialization within degree program, Liberal Arts, 36
Statistical Consulting Center, 165
Statistics and Actuarial Science, 163
Student accounts, payment of, 11
Student Activities, Campus Programs and, 18
Student complaints concerning faculty actions, 21
Engineering, 320
Student Health Services, 19
Student rights, 21
Surgery, 404

T
Teacher certification services, 277
Teaching certificate with the B.S. degree, Liberal Arts, 44
Technology Innovation Center, 25
Testing Programs, Iowa, 277
Theater Arts, 220
Transcripts, 18
Transfer students, Liberal Arts, admission, 48
General Education Requirements, 42
Translation Laboratory, 26
Transportation Studies, 233
Tuition and fees, 11
Tutorial labs, 18

U
Undergraduate Academic Advising Center, 17, 318
Undergraduate Scholar Assistant Program, 5
United Program, Liberal Arts, 38, 50
University of Iowa Foundation, 32
University of Iowa Health Center, 27
University of Iowa Hospitals and Clinics, 27
University of Iowa Press, 33
University Hospital School, 29
University House, 25
University Theatre, 30
Urban and Regional Planning, 235
Urban Community Research Center, Iowa, 217

V
Veterans Administration Medical Center, 30
Veterans Services, 19
Video Center, 25

W
West Computing Center, 25
Windover Press, 31
Women's Resource and Action Center, 19
Women's Studies, 238
Writing Lab, 18
Writing programs, 31

Z
Zoology (see Biology, 72)